



**FOREIGN
BROADCAST
INFORMATION
SERVICE**

JPRS Report

Soviet Union

Economic Affairs

DISTRIBUTION STATEMENT A
Approved for Public Release
Distribution Unlimited

REPRODUCED BY
U.S. DEPARTMENT OF COMMERCE
NATIONAL TECHNICAL INFORMATION SERVICE
SPRINGFIELD, VA. 22161

19990322 087

Soviet Union

Economic Affairs

JPRS-UEA-88-043

CONTENTS

22 NOVEMBER 1988

NATIONAL ECONOMY

ECONOMIC POLICY, ORGANIZATION, MANAGEMENT

Gosplan Officials Assess Economic Reforms, Perestroyka [Yu. Kalmykov, O. Yun; <i>EKONOMICHESKAYA GAZETA</i> No 32, Aug 88]	1
Plant Economist Discusses Lessons Learned From Khozraschet [S. Sorkin; <i>EKONOMICHESKAYA GAZETA</i> No 32, Aug 88]	5
Infusion of New, Better-Trained Personnel in Central Bodies Urged [N. Pushkarev; <i>NEDELYA</i> No 33, 15-21 Aug 88]	9
Petrakov on Socialist Market Problems, Monetary Reform [N. Petrakov; <i>OGONEK</i> No 34, Aug 88]	11
Roundtable on Gospriyemka's Present Role, Future Direction [<i>STANDARTY I KACHESTVO</i> No 8, Aug 88]	21
Insufficient Experience With Market Claimed [N. Kolesov; <i>EKONOMICHESKIYE NAUKI</i> No 5, May 88]	28
Goskomstat Official Describes Formation of GNP Indicator [<i>EKONOMICHESKIYE NAUKI</i> No 5, May 88]	33
Cartoon: Pay for Work [I. Anchukov; <i>TRUD</i> , 15 Oct 88]	36

PLANNING, PLAN IMPLEMENTATION

Comments on Magnitka Steel Plant's Rejection of State Order [<i>KAZAKHSTANSKAYA PRAVDA</i> , 31 Aug 88]	37
---	----

REGIONAL DEVELOPMENT

Draft 'Concept' For ESSR Economic Accountability [<i>SOVETSKAYA ESTONIYA</i> , 30 Sep, 1 Oct, 7 Oct 88]	39
Uzbek 'Mafia' Involved in Shadow Economy [S. Yurakov; <i>EKONOMICHESKAYA GAZETA</i> No 36, Sep 88]	50

TRANSPORTATION

CIVIL AVIATION

Fate of Tu-144 Supersonic Airliner Examined [Yu. Mamsurov; <i>KRASNAYA ZVEZDA</i> , 1 Oct 88]	54
An-74 Transport Aircraft Highlighted [M.M. Kirillin; <i>GRAZHDANSKAYA AVIATSIYA</i> No 6, Jun 88]	55
Conference Examines New Aircraft, Technology [V. Belikov; <i>IZVESTIYA</i> , 23 Sep 88]	60
'Trassa' Air Traffic Control System Highlighted [Ye. Korolev, et al; <i>GRAZHDANSKAYA AVIATSIYA</i> No 8, Aug 88]	61
Tu-134 Flying Laboratory Noted [V. Lamzutov; <i>GRAZHDANSKAYA AVIATSIYA</i> No 8, Aug 88]	65

MOTOR VEHICLES, HIGHWAYS

Yelabuga Tractor Plant Switches to 'OKA' Production [N. Sorokin; <i>SOVETSKAYA ROSSIYA</i> , 25 Aug 88]	68
New Minsk Truck Series Reviewed [O. Permyakov; <i>AVTOTRANSPORT KAZAKHSTANA</i> No 6, Jun 88]	68
Trucks for Northern Regions Detailed [B.N. Infontov; <i>AVTOMOBILNYYE DOROGI</i> No 7, July 88]	70

RAIL SYSTEMS

More on Sverdlovsk Rail Blast	
[V. Semenov; <i>SOTSIALISTICHESKAYA INDUSTRIYA</i> , 14 Oct 88]	72
Shortage of Resources on International Routes	
[Yu. Kozlovskiy; <i>GUDOK</i> , 2 Sep 88]	73
BAM Logistical Problems Noted	
[V. Sizov; <i>GUDOK</i> , 2 Sep 88]	74
Kharkov, Kiev, Minsk Metro Status Reviewed	
[V. Chibisov; <i>GUDOK</i> , 9 Aug 88]	76

MARITIME AND RIVER FLEETS

'Volzhanka' Maritime Transceiver Reviewed	
[Ye. Trofimov, N. Mokrushnikov; <i>RECHNOY TRANSPORT</i> No 7, Jul 88]	79

ECONOMIC POLICY, ORGANIZATION, MANAGEMENT

Gosplan Officials Assess Economic Reforms, Perestroika

18200287 Moscow *EKONOMICHESKAYA GAZETA*
in Russian No 32, Aug 88 pp 6-7

[Article by Candidate of Economics Yu. Kalmykov, USSR Gosplan section head, and Doctor of Economics O. Yun, USSR Gosplan assistant section head: "The Key To Perestroika Is Economic Reform"]

[Text] In their speeches, delegates to the All-Union Party Conference frequently addressed issues related to the economic reforms and their implementation. This is easy to understand, since dramatic economic reform and democratization are justifiably viewed as the key to our perestroika.

The party conference's resolution "Implementation of the 27th CPSU Congress' Decisions and the Effort to Institute Perestroika" states that the bulk of the economic reforms must be in effect by the end of this Five-Year Plan. Because it has recently been given a boost by the political reforms, economic perestroika has in turn become one of the factors setting the pace and facilitating the success of changes in other areas of society. It is therefore very important to study the reasons for the sluggish pace of change in economic management and find out why the new system of management has failed to live up to its promise.

The Authoritative Plan

Let us take centralized planning as an example. So far, it has not been possible to make the Plan more authoritative, balanced, and realistic. The reason for this goes beyond the slow rate of change in centralized planning and enterprises' Plan-related efforts, although this has certainly been a factor. Instead, the main problem is that the entire planning methodology remains essentially unchanged: each plan is based on the quotas of the previous five-year plan, which in turn is based on now outmoded principles.

In many instances, centrally planned indicators were officially lowered, while recommendations were sometimes given mandatory status. A study of enterprises operating in the new economic environment showed that they were given mandatory levels for machine shift coefficient, percentage of manual labor, and other indicators they should have been able to set independently.

The obsession with gross output continues. Both ministries and agencies of the soviets still scrutinize the rate at which gross output is growing. Of course this is no surprise, since gross output is still the criterion used to judge how fast an industry or region is progressing. As we can see, we need to coordinate the guidelines in the system of criteria used by ministries, departments, and

regional management authorities with the method the USSR Enterprises (associations) Law has set for auditing enterprise operations. Doing so will relieve enterprise and association managers of the pressure from local and industry-level economic managers to force output growth rate up to the level of the indicators at any cost.

The "exalted" concept of gross output also continues to triumph because of the many industries that still tie wage fund indexes to output. By lessening the importance of output in the economic equation of associations and enterprises, we can start planning the wage fund in the manufacturing industry using net production or income indexes, or, in the case of the fuel and energy production industry, indexes reflecting production in kind.

The Mandate of Product Indicators

The Goszakaz [State Procurement Agency] has a key part to play in the institutionalization of the new centralized planning model. Yet even though changes at Goszakaz have permitted the number of product indicators requiring prior authorization to be cut by a factor of 3.7, the old techniques of planning have distorted the meaning of the Goszakaz. Many USSR ministries and departments still over-regulate their enterprises when setting Goszakaz levels. The Goszakaz has thus become bloated, while at the enterprise level most of the products, projects, and services available are centrally planned.

Under the goszakaz part of the Plan, the USSR Minselkhoz mash [Ministry of Agricultural Machinery] is responsible for 49 separate items of equipment, while as part of its effort to set its state procurement level it has coordinated with the USSR State Planning Agency and agreed to the production of 72 items of machinery. Yet the ministry's instructions to the enterprises within its jurisdiction specify the manufacture of 1,242 different kinds of machines and other agricultural items. Central management agencies had to become involved to deal with the shortages the enterprises faced.

The USSR Council of Ministers recently approved the Temporary Regulations For Setting State Procurement Levels For 1989 and 1990. (For the text of this document, see issue No 31 of *Ekonomicheskaya Gazeta*.) Overall, the Temporary Regulations prescribes a significantly lower level of Goszakaz involvement in deciding enterprise output volume, except for energy and energy products and raw materials producers. For many enterprises, state procurement levels will simply not be set, while the right to set them where they are set will belong jointly to the USSR Gosplan and Gossnab. A system of economic benefits will ensure that the needs of the state procurement establishment are met, and this in turn will permit orders to be divided among enterprises on a competitive basis. The result of this will be to give enterprises more independence in deciding what they produce.

Enterprises are also facing a growing requirement that they expand their network of direct ties and contracts. In fact, work is still needed just to get contracts written and signed on time. At the beginning of 1988, contracts had been signed for 461 billion rubles worth of goods, or 90 percent of the goods earmarked for delivery under contract. This situation is especially unsatisfactory in the consumer goods sector, where even early April's orders were several billion rubles short. We feel that full khozraschet and self-financing mean commercial operations with suppliers and consumers should be ongoing, and not confined to contract campaigns.

What Is Keeping A Fast-Paced Plan From Being Adopted?

We have not yet solved the problem of designing fast-paced Plans that enterprises will adopt without lowering the quotas they are given. Nonetheless, enterprises that began operating in a khozraschet environment in 1988 have proven to be better equipped for this new method of planning. As a result, numerous ministries saw their enterprises design the 1988-90 plans to match the original figures they were given, while enterprises within the USSR Mingazprom [Ministry of the Gas Industry] and USSR Minsvyaz [Ministry of Communications] actually raised the figures they were given. As a whole, however, enterprises that began operating in a khozraschet environment wrote their 1988 plans to cover 3.3 billion rubles worth of output, or 0.4 percent lower than the level indicated in the original figures they were given. And enterprises within the machine building industry—particularly those in the USSR Minelektrotekhprom [Ministry of Electrical Equipment] and USSR Minselfhozmash—cut the manufacturing program figures they are using by almost 1.3 billion rubles.

The profit quotas in industrial enterprises' plans have also been short of the level assigned to them. The total of this difference is 2.5 billion rubles, including 1.6 billion rubles for the machine building industry, an amount that is 7.5 percent lower than what was recommended. Because of this, the Plan decreased payments into the budget by 1.2 billion rubles. In addition, the fund for industrial, scientific, and technological development shrank by 800 million rubles, as did the fund for social development, which shrank by 240 million, and the motivation fund, which was cut by 270 million.

Reduced output, profit, and contribution quotas threaten both to make implementing the national revenue plan more difficult and to worsen social labor productivity indicators. And in addition, enterprises will have fewer opportunities to retool, modernize, and increase social benefits. What is the cause of this unfavorable situation?

To a great extent, the culprits are poor organization on the part of ministries and enterprises themselves, lack of preparedness for adopting the state certification program, and production plans that were not matched to the

potential of supply networks and technology. Because of this situation, enterprises, which designed their plans independently, were afraid to use their full potential for increasing output, and held back out of habit.

Another obstacle to adopting fast-paced plans is weaknesses of the economic apparatus itself, including an extremely rigid system of sanctions against those who violate the terms of a contract. The reason for this is that the increase in khozraschet-related income from a fast-paced plan does not counterbalance the economic losses that are inevitable if performance of a contract is not possible. Because of this, many work units prefer slower-paced plans with quotas that can be met without difficulty or even exceeded. For example, the Sumskiye NPO [Scientific Production Association] imeni Frunze set its 1988 profit quota 7.1 million rubles below the ministry's recommended figure, yet by the first quarter had produced 8.5 million rubles over the quota.

But are we justified in using the current system, in accordance with which incentive funds are increased by 15 percent if contract obligations are met and are cut by 3 percent each time they are not? We feel this is wrong. Enforcing delivery discipline in this way was a legitimate technique when planning by fiat was the norm, but now it only encourages enterprises to cut output and take on fewer contractual obligations. Another problem (and one that curtails material interest in raising output) is that the size of wage funds is based on the extent to which incremental growth quotas are met.

The problem of economic sanctions and the system through which they are imposed on enterprises has been addressed in a draft ordinance that will sharply cut the number of such sanctions. Sanctions will be instituted only when there have been major violations of the State Plan or contract discipline. At the same time, there will be greater material responsibility for failing to meet obligations under economic contracts.

We feel other measures would also be helpful. For example, the 15 percent incentive fund increase for meeting contract obligations should only be permitted when the quota that was met is at least at the level of the ministry's recommended quota. We also have to eliminate the practice of cutting incentive funds when contract obligations are not met. Delivery discipline will be a reality when penalties are imposed for breaches of discipline. Such penalties will be in the form of a fine collected from enterprises' khozraschet income or a requirement that the enterprise repair the damage incurred by the consumer.

Another important aspect of the first khozraschet model is that we must link wage fund growth with increases in sales, conformity with economic indicator control figures, and performance of contractual obligations.

Valid Quotas

The All-Union Party Conference justifiably criticized failings in the way economic quotas are set. Only reforms in the price setting mechanism will make it possible to create a system of economic quotas capable of ensuring that the state is equitable in the intensity of the allocated resource usage requirements it sets for enterprises. Without a well designed price system, it is difficult to ensure a sound budgetary policy at enterprises or establish effective economic relations.

Yet now is the time to begin a thorough discussion of the principles behind creating a system of quotas and taking the steps necessary for preventing recurrences of the problems we have dealt with in the past.

Stimulating Personal Interest

One of the key problems involved in setting up the new economic system is reorganizing the wage system. Wages should be directly tied to performance and the final outcome of personnel efforts. However, many enterprises have not changed much since instituting the new basic wage rates, additional duty compensation rates, and bonus award system. There has been no substantial increase in output norms: while basic wage rates rose 20-25 percent, the norms only went up by 1.5-10 percent. Another area that deserves our attention is the additional sources of funds used to cover pay hikes. Such sources are generally the result of structural changes in the wage system, and do not come from output-growth related increases in productivity or personnel cuts. That is, they result when wage supplements and allowances are cancelled and the minimum qualifications for personnel are cut.

In addition, insufficient use is being made of increased wage rates' ability to help resolve the problem of wage equalization among specialists and workers. Many work units have not been able to unlearn the attitudes inherited from the period of stagnation. For example, the wages paid to engineers, workers, and other specialists who demonstrate a high degree of initiative and superior performance are kept at an unreasonably low level.

The new bonus policy has also failed to address the problem of improving enterprise performance. At 70 percent of the enterprises we surveyed, worker bonuses were organized essentially as before.

And finally, the techniques currently used to boost wage funds are also adversely affecting the new system of economic management. The use of incremental additional-growth quotas has had a paradoxical impact on the economic posture of enterprises: while it cuts personnel, it does not create any incentive to increase production. This is because more is paid out in wages to increase production than is earned through the increases in production. It is therefore more advantageous to raise

wages by cutting personnel than increasing output. Consequently, manufacturing capacities are not being used as they should and return on capital is falling.

We should not ignore the fact that the first khozraschet model fails to link the growth of a significant portion of the wage fund with so important an indicator of enterprises' economic performance as the percentage of contract obligations met. There have been many cases in which the average wage has increased despite a decline in the percentage of contract obligations met, as is illustrated by the figures below, which compare 1987 to 1986.

	Decline in contract obligations met	Average wage growth
All industry	-0.3	+2.6
USSR Minavtoprom [Vehicle Ministry]	-0.6	+3.6
USSR Minpribor [Instrument Ministry]	-1.8	+2.2
USSR Minkhimash [Chemical Machinery Ministry]	-2.0	+0.8

We feel it makes more sense to make wage fund increase quotas incremental and contingent on fractional increases in the extent to which obligations under delivery contracts are met.

How Do We Back Our Funds?

The result of failing to carry economic reforms to completion is that management becomes an amalgamation of old and new techniques, and the various elements of the management apparatus fail to operate in concert.

For example, enterprises now have much greater freedom to use the money they earn. However, this is not the case for materials and machinery suppliers. After all, the wholesale trade experiment affected only industries operating in the pre-reform mode. The result has been that only about 80 percent of the money in funds for stimulating economic growth is used. And there are even greater difficulties involved in using the money in production expansion funds.

There are other areas where the reforms have not been followed through on. For example, a decision has been made to use enterprise funds and bank credit to pay for the materials and equipment needed for retooling and modernizing. But the decision has not been implemented. In one instance that illustrates this problem, the 1987 funds allocated to USSR Minpribor enterprises for purchasing equipment needed to retool plant were 107 million rubles below the requested level.

The shortage of materials and equipment and the limits on work that could be contracted resulted in lower 1987 quotas (they should have been higher) for starting up new industrial capacities. For example, the USSR Minkhimash was supposed to put 696 million rubles worth of fixed capital on line in 1987, but enterprises only agreed

to 559 rubles worth (or 137 million less) in their plans. And USSR Minavtoprom enterprises cut their capital investments by 327 million rubles.

Because of this, and in response to decisions made at the 19th All-Union Party Conference, the USSR Gosplan, USSR Gosstat, and other interested ministries and departments have prepared specific proposals designed to help speed wholesale trade of the means of production.

Obstacles to meeting the needs of the means of production market and expanding wholesale trade include the minimal incentive enterprises and suppliers have to reduce goods and materials inventories. As our study has shown, the bulk of these inventories consist of remnants, materials, and components produced by regional organizations within the USSR Gosplan system, and these organizations have not made a serious effort to conserve resources. There have also been many examples of organizations involved in the supply and sale of materials failing to help enterprises sell surplus materials and components, establish solid economic ties, and obtain information on market conditions.

The only way to rectify this situation is to completely change the way regional supply organizations operate and insure that the khozraschet system is used. In addition, these organizations need to make more extensive use of the management techniques already adopted by enterprises and associations. Finally, if the pay and bonuses of regional organization personnel are tied directly to profit (income), organizations will be forced to deal seriously with the commercial aspect of their relations with suppliers and consumers.

In our discussion of how to change the materials and equipment supply system, we need to stress that shortages of certain materials must be eliminated before we can make the process of introducing a means of production wholesale trade system move any faster. Enterprises and associations that have begun wholesale trading offer ample proof that failure to be aware of this can prevent us from obtaining the complete benefit inherent in this method of providing materials and equipment.

Because of this, no decision to have regions or enterprises (associations) start wholesale trading should be made unless deadlines have been set for programs aimed at eliminating shortages and creating an environment favorable to the complete exploitation of earnings. First and foremost, these programs should focus on: conserving resources by utilizing advanced khozraschet techniques; changing investment policy; and encouraging enterprises to adopt new equipment and materials at a faster pace. At the same time, we must not forget to find ways to boost output of materials and components that are in short supply, including such techniques as a system of incentives to encourage enterprises in this

area. One promising avenue here might be more extensive use of market prices. Currently, the prices for machinery and equipment are set in accordance with USSR Gosstat [State Committee on Prices] and USSR Gosplan guidelines.

Prices And Credit

We can see that the current economic apparatus is incomplete if we look at the fact that the self-financing system still employs the old techniques of setting prices.

Wholesale price reforms are scheduled for 1990. Nonetheless, we can save time by starting to use contract and market prices for new products this year.

Price reform, however, will not result in a better economic situation unless we can balance finances and upgrade the credit mechanism. Concurrently, we need to stabilize the performance of other enterprises and insure that all work units scrupulously meet their output and delivery quotas, as well as their other obligations under the Plan, while observing quality and efficiency guidelines. Otherwise, it will be much more difficult to balance finances.

Because enterprises' circulating capital shortfall, which is now over five billion rubles, is so large, we ought to consider partially making up at least some of the difference using the spare portion of economic incentive funds. This arrangement would be accomplished within a given industry and would require the agreement of work units. The money would be repaid later.

The measures taken to upgrade the credit system include granting credit based on inventory and production outlays and reviewing interest rates. In practice, these measures have been inadequate. The interest rates have not led to more effective and sparing use of material and financial resources. Moreover, there is still no sound version of a credit policy for enterprises in a full khozraschet and self-financing system environment, and the network of specialized banks that has been created is operating in the pre-perestroyka mode. Banks have not been adopting khozraschet principles at a fast enough pace, and this in turn has made them less effective in helping enterprises reorganize their economic operations.

How Is The Second Khozraschet Model Being Used?

The new economic system must make its presence known in every workplace and change the nature of the relations within the industrial establishment itself. However, many enterprises and associations have either been sluggish in changing the nature of these relations, or have accomplished them without considering the needs of the new economic system. For example, most of the structural units making up an association have lost their independent authority to plan and use earned money,

modernize plant, and expand their finance and credit network. Each of these important aspects of the khozraschet system is the bailiwick of the lead plants within an association.

Modern khozraschet techniques have been slow to be implemented among engineer and other operational units, as well as in the factories, shops, workplaces, and teams of enterprises; and rules of khozraschet usage are left to stand without review for long periods of time. The result is that khozraschet changes are only made after work units are confronted with a difficult problem. This degrades the effectiveness of their subsequent efforts.

There is also the other extreme. Economists often attempt to apply enterprise- or association-level planning indicators, operations evaluation criteria, systems of incentives, and other economic techniques to the constituent elements of a plant.

For example, the USSR Minkhimash Penztyazhpromarmatura association is assigned quotas for 110-120 indicators. Manpower is planned in accordance with eight indicators, the wage fund is planned in accordance with seven, and estimates of shop spending are based on 28 indicators. At the Kaliningradbummash association, quotas for indicators (there are 18) are even assigned at the worker team level.

In our opinion, the second khozraschet model, in which wages are directly proportional to the performance of management, represents a way enterprises can make dramatic changes to their internal khozraschet structure. USSR Mingeo [not further identified] enterprises have demonstrated this in practice. Along with trade and light industry enterprises in the Belorussian SSR, the Mingeo has been among the first organizations to use this khozraschet model throughout an entire industry. In 1987, its enterprises increased their income 19.9 percent over the 1986 level, raised return on investment by 14 percent, boosted their circulating capital rate of turnover by 23 percent, and cut losses and non-production related spending by more than one-third. At the same time, productivity grew by more than twice as much as average wages.

However, only individual worker units within other ministries are now using this model. We feel the following are necessary to put usage of the second khozraschet model on a faster track. First, we have to ensure that when this model first begins being used somewhere, wages will be at a certain minimum level and payroll will be guaranteed in case income drops for external reasons. Enterprises can do this by creating wage contingency funds. *Ekonomicheskaya Gazeta* has already written about work done in this area in issue No 16 of this year.

Second, we must organize a campaign to educate worker units in the true meaning of the second khozraschet model. Sociological studies have shown that specialists at enterprises, especially their managers, have only a

vague idea of the model and its advantages, while most ministries and departments are reluctant to implement it because doing so would require a major reorganization effort.

We should note that our shift from the use of centrally planned quotas for governing profit distribution and wage fund growth to a system of revenue and wage fund taxation represents a fine opportunity to use the second khozraschet model.

There is currently an effort to develop guidelines for taxation within the joint-ownership community, and these guidelines may also be appropriate for the state-owned enterprise tax system. As socialist competition grows, both of these sectors will need to be put on equal footing.

In order to put the tax system in its final form and approve the actual tax rates and benefits, we should make 1989-90 an experiment that will provide us with the information we need to design a Plan appropriate for enterprises using the second khozraschet model in the next Five-Year Plan.

Industry has been slow to take advantage of such advanced khozraschet techniques as contracts with worker units and leases. It would be beneficial to expand the number of areas open to lease arrangements and use them not only within a manufacturing sub-unit, but at the enterprise and association level as well.

Currently, lease arrangements at the enterprise and association level are not widely used because there is no legal or economic framework for dealing with such issues as determining the amount of rent, the rental term, and pay and bonuses. At this time, the USSR Gosplan, along with the USSR Minfin and other agencies with an interest in the matter, is working on the rental terms for the Sumskaya Machine Building Plant imeni M.V. Frunze, which is a scientific production association, and the light industry community of the Estonian SSR. Both plan to begin using the new khozraschet model in January of 1989.

Plant Economist Discusses Lessons Learned From Khozraschet

*18200010a Moscow EKONOMICHESKAYA GAZETA
in Russian No 32, Aug 88 pp 8-9*

[Article by S. Sorkin, deputy general director for economic problems for a thread-spinning production association: "The Lessons Taught by Cost-Accounting"]

[Text] At the 19th All-Union Party Conference, a realistic assessment was made of what has been accomplished in the previous years of this five-year plan, and the results achieved so far were given serious critical analysis.

I would also like to assess our enterprise's policy along these lines, to analyze the experience accumulated by our collective under full cost-accounting [polnyy khozraschet], and I would like to draw some conclusions.

A year has passed since our association began operating under the new system of intra-industry cost-accounting, which was developed taking self-financing requirements into account. Intra-plant cost accounting has resource conservation and output quality as its targets. The brigade has become the leading link: the wages it earns depend both on the quantity of the output it produces as well as on the amount of resources it has expended.

What did the collective earn this year?

Here is a table of the basic indicators characterizing the association's work for 1987-1988 as compared to the average yearly data for the preceding several years.

Indicators (in percent)	Average annual for 1984-1986	1987	1988 (1st quarter)
Income: growth rates	3.5	7.2	8.1
Output-capital ratio of income (reduction rates)	1.1	1.7	2.7
Power capacity of income (reduction rates)	2.7	4.0	7.5
Materials consumption rate of income (reduction rate)	2.2	5.7	6.1
Labor productivity (growth rates)	4.3	7.8	8.2
Average wage (growth rates)	1.9	3.9	4.5

As the data in the table show, in 1987 and the 1st quarter of 1988 the increase in the effectiveness of production was 2-3-fold greater than the average annual indicators for the preceding three years. This is all the more significant, in that it is recorded in an enterprise with a high initial "base." How do we assess our result?

We believe our result was established objectively and reflects the real effect of new cost-accounting relations. In support of this, we can argue that in spun-thread production, where new experimental approaches have been introduced prior to other approaches, income and labor productivity growth rates increased in 1987 by 122.3 and 114.9 percent respectively, which is much higher than the average indicators for the association. Correspondingly, the average wage in this structural subdivision also increased substantially: by 7.5 percent.

The association collective earned R1.6 million above the plan through resource conservation and increased production alone. The workers successfully fulfilled their contractual obligations to all consumers of their output. As a consequence, the association paid not a single ruble in fines either in 1987 or the 1st quarter of 1988.

These results permit us to conclude that in its practical operation, the main principle of the structure of cost-accounting relations has given good account of itself on the level of the enterprise's intra-industry links: each of them earns its wages independently and these wages depend directly on the level of utilization of consumed resources and the final results of the economic operation. Real cost-accounting has uncovered deep production reserves, while simultaneously teaching instructive lessons. What are they?

LESSON ONE

It has shown that the interests of everyone involved in the economic process must agree. Neither engineering and technical personnel nor white-collar workers can be kept from participating.

In accordance with the system by which our association has set up intra-production cost accounting, workers' wages are formed by taking two wage levels into account—the normative and the cost-accounting. The normative wage is determined by the volume of output produced and the amount of the labor quota, which characterizes the amount of wages per unit of output. This is the potential wage for a cost-accounting collective which observes the level of utilization of production resources used to determine the planned level of income for the enterprise.

The cost-accounting, or actually-earned wage is determined by taking the actual level of utilization of production resources, and deviations within it from the prescribed level, into account. It can add up to more than the normative wage when an income is recorded in the individual account for the effectiveness of a brigade or subdivision, or less if the individual account shows a negative result, i.e., a loss.

When setting up a wage structure for administrative employees, including regular personnel, we have tried to coordinate their interests more closely with the common tasks of the collective: the administrators have been charged with creating the conditions needed to help them work more effectively. It has been decided to make the dynamics of the wages paid to engineers and white-collar workers dependent on the same level of production resources utilization as for workers. This makes it impossible to raise "administration" wages without raising "performance" wages.

Here is how it works in practice. The so-called standard wage "course" for administrators is set every month. The standard wage consists of a salary plus the bonuses provided for this year. Thus with a foreman's salary of R180 and a bonus ceiling of 40 percent, his monthly standard wage comes to R252. But this is his potential wage. The actual wage level will depend on the relationship established between the cost-accounting and standard wage fund of the section the foreman is in charge of. And the higher the coefficient expressing the relationship between the cost-accounting wage fund and the standard wage fund, the higher this wage level.

Let us examine a specific situation. The association set up three workshop sections in the carding shop of the cotton-spinning mill. In April 1988 the 1st section brigade recorded savings of R441 in its personal account, the 2nd section brigade had R1,559 and the 3rd section brigade had R2,843. The brigades' additional wages were determined in accordance with their total incomes.

This came to R133 (2 percent of the standard wage fund for this section's workers) for the 1st section, R471 for the 2nd section (10 percent of the standard fund) and R858 (17 percent of the standard fund) for the 3rd section.

How did the cost-accounting wages for the section foremen turn out? The foreman of the 1st shop earned R257 ($R252 \times 1.02$), the 2nd section foreman earned R277 ($R252 \times 1.1$) and the 3rd section foreman earned R295 (252×1.17).

The total additional income for the shop amounted to R4,843, which was used to form an additional wage fund of R1,462, or 10 percent of the standard fund. The normative cost-accounting wage for a shop chief in this instance came to R354 ($R230 + 40$ percent of R230) $\times 1.1$. We can see that the wage for a "manager" is formed in direct connection with the wages of the "managed", with those of the latter directly depending on the results of their labor. A typical detail is that the foreman of the 3rd section earned an additional R43 ($R295 - R252$), which is more than the shop chief, who received an extra R32 ($R354 - R322$). This is fair: the amount of wages indicates the effectiveness of the work done by cost-accounting subdivisions. And it has turned out to be higher in the 3rd workshop section than for the shop overall.

Just like the workers, administrative personnel are held responsible when cost-accounting results fall off: the level of their normative wage falls off. What is used as a reference marker here? If a negative result is recorded in a brigade's personal account, the normative wage for regular administrative personnel diminishes depending on the amount of the shortfall caused by the corresponding structural subdivision.

The cost-accounting wages for administrative employees of functional subdivisions are formed in similar fashion. In this instance, the cost-accounting and normative production wage funds correspond (for a mill) or an

association as a whole. Thus, the wages for administrative personnel are not connected to the system of indicators and conditions, but to the final results of the work of the corresponding cost-accounting subdivision.

Practice shows that a wage system such as this directly motivates administrative workers to create conditions in which labor collectives will seek out production reserves and put them to use. Here, all categories of workers are linked by incentives: directors' and specialists' wages are raised only when workers' wages are raised, and wage cuts for workers automatically mean wage cuts for administrative personnel.

We can see that the result is interesting. The enterprises in the 1st group received an additional R3.7 million in cost-accounting income by conserving resources and earned an additional R800,000 for their social and production development funds. The enterprises in the 2nd group, which had a shortfall of R5.4 million in cost-accounting incomes, put almost the same amount into their funds!

Could it be that this anomaly is the result of a convergence of circumstances which occurred on the regional level? No, the facts show that this is the way the system works. Last year almost a 70 percent increase in income was achieved by the republican Minlegprom [Ministry of Light Industry] through price mark-ups, and was achieved in the leather footwear enterprise and a number of enterprises of other subsectors—by this factor alone. In the final analysis, it was not cost-accounting, but price mark-ups for output with reference letters "N" and "D" which accounted for the increased amounts in the funds and, to a great degree the wage increases.

LESSON TWO

Using the second cost-accounting model, on whose principles Belorussian Ministry of Light Industry enterprises perform self-financing, **incomes and funds should be increased only by those labor collectives which, thanks to intensified production, are cutting costs and conserving resources by all possible means.**

However, does this always occur in practice? Regrettably, as experience shows, it does not. What is the matter? The following table shows the formation of funds in this republic's Ministry of Light Industry enterprises in the Grodno Oblast in 1987. All the enterprises can be broken down into two groups—depending on their production of output with reference letters "N" and "D". How has the relationship between increased income and the increase in the amounts in the social and production development funds developed here?

Thousands of rubles

First Group Enterprises	Increase in cost-accounting income	In all	Increase in social development fund		In all	Increase in production development fund	
			Due to cost-accounting income	Due to “N” and “D”		Due to cost-accounting income	Due to “N” and “D”
Grodno Spun Thread Production Association	+1560	+149	+149	—	+106	+106	—
Slonim Worsted Spinning Mill	+2116	+234	+234	—	+373	+373	—
Grodno Tannery	+45	+4	+4	—	+4	+4	—
Total:	+3721	+387	+387	—	+483	+483	—
2nd Group Enterprises							
Grodno Sewing Mill	+193	+243	+11	+232	+245	+13	+232
Lida Shoe Works	-490	+320	-40	+360	+318	-42	+360
Grodno Shoe Works	-5,115	-266	-486	+220	-140	-360	+220
Total:	-5412	+297	-515	+812	+423	-389	+812

To be sure, the development of cost-accounting relations is inconceivable without providing incentives to improve output quality, and this is, of course, accompanied by price dynamics, since they should reflect the growth of its qualitative technical and economic characteristics. But we will speak candidly: these days, the large figures characterizing the share of new and improved consumer goods in the total volume of goods produced (47 percent of the goods produced by the Belorussian Ministry of Light Industry during the 1st quarter of this year), more likely point to the increased cost of the products (the average percent of price mark-ups for improved quality goods for 1987 alone increased in Belorussian light industry from 18 to 24 percent), than to the results of improving their consumer-related features.

The only innovation associated with the overwhelming majority of the products had to do with certain of their external attributes. Those of the goods' consumer properties which indicate their function have remained substantially unchanged. And proof of this is the paradox that not so long ago, USSR Gosplan, USSR Goskomsen [State Committee on Prices], USSR Mintorg [Ministry of Trade] and USSR Minlegprom [Ministry of Light Industry] established a procedure, by joint decision, for disposing of improved quality items produced by the knitted goods, garment and footwear industries by... lowering their grade. It turns out to be possible to have improved quality goods, but of lowered grade (!). Indeed, what don't we bring to the sacrificial altar of "the measure of value"!

Practice shows that the absence of real economic rivalry, an enterprise having a monopoly position in the market and turning prices into a self-sufficient factor which ensures primary growth in income usually gives cost-accounting relations a formal character. This, too, is one

of the lessons of cost-accounting. And it is a bitter lesson. **Self-financing can only be considered as such when it excludes unearned incomes, and cost-accounting can only be considered real when it is based on economic results and is not combined with prices.**

LESSON THREE

Of the 62 enterprises in this republic's Ministry of Light Industry, analysis has shown that only 9 have introduced intra-industry cost-accounting which meets present-day requirements. And this is in a ministry which has accorded this problem priority status. Schools for managers and economists have been devoted to improving intraproduction cost-accounting, and two expanded collegiums in which managers of enterprises and economic services have participated have been in session for almost 6 months. This ministry's Center for the Scientific Organization of Labor has put forth a major effort to work up recommendations for introducing cost-accounting in intra-industry structural enterprises. Why is the number of these enterprises so small?

This question can be answered with another question. Why introduce intra-industry cost-accounting at all? If it is possible to earn "non-cost-accounting income" which, as has already been pointed out, is formed primarily by raising prices, there is also certainly no longer any need for effective internal cost-accounting.

In fact, the practice of working under the new system suggests that using in-house wages to expand requires the use of new principles on an intra-industry level as well. **Cost accounting will become real if it is introduced into all links, beginning with the primary links.** And this is the third major lesson taught by practice.

Infusion of New, Better-Trained Personnel in Central Bodies Urged

18200006a Moscow NEDELYA in Russian No 33,
15-21 Aug 88 p 3

[Article by Doctor of Economic Sciences Nikolay Pushkarev under the "Polemical Notes" rubric: "The Right to Decide Is Not a Privilege, but a Responsibility"]

[Text]

Perestroyka Goes On

I think I am not wrong in characterizing the essence of the bureaucratic mechanism in these few words: "Number One" makes all the decisions." How many lucid minds, how many promising initiatives have had to suffer—having fallen into the round of departmental red tape—walking from office to office, innumerable agreements with a single solitary goal: to shift the responsibility for solving a specific problem onto someone else. Finding no help on one level, one appeals to a higher level. And then to an even higher level. And so on to the very top. However, only inexperienced "petitioners" make the rounds of all the levels of power one after the other. Those with experience know where to go for answers to even the simplest questions. And this is why general directors of gigantic industrial enterprises travel to Moscow over mere trifles; there they wait their turn for days to be received by a minister—which turns out to be the quickest way to get results. In the old days, matters used to be taken to absurd lengths: the question of whether to allow the people to see a newly-released film was decided by the General Secretary, as though he had nothing else to worry about.

However, this absurdity has its own logic: a situation in which "Number One" solves everything removes responsibility from practically every employee in the administrative apparatus. No responsibility equals no blame.

You can pound your fist all you want, demanding that these or those decrees of the directive organs be carried out. You can entreat the public, explaining the importance and urgency of these decrees. The ministry staffs will print their instructions, explanations and recommendations on each of them where, referring to the sector's special features, it is easy for them to force their narrow departmental and parochial interests through.

As it has always been, it is and always shall be until we decide who has to answer for implementing party and governmental decisions. The ministry and department staffs certainly do not labor under this burden, and this is understandable: the truth is, taking the responsibility for performing a useless act upon oneself is synonymous with declaring oneself to blame for the resultant misfortunes, and thus for the discrediting of the decrees. At

best, the directive organs apparatus ascertains whether this or that document "works" or not, and does not look for the "sieve" through which this document passes on its way to the executors.

The vicious cycle of irresponsibility contains both the cause and the result of one of the serious flaws of our administrative system. The name of this flaw is: Employee Incompetence.

For years, the employees of the administrative apparatus have frequently been selected as the result of a telephone call—as it pleased a specific director or structural subdivision. This principle for forming central departments has been imitated by the organizational structures on all hierarchical levels of sectorial administration, all the way down to the production brigade. Now we are harvesting the first fruits of this practice: instead of intelligent administrators we have, to our deep regret, so many sharp and shifty bureaucrats. But there is no point in reproaching a bureaucrat for being accustomed, not of thinking how to better perform the task he has been given, but of how to shunt it off to someone on a lower level and of how to report back to those "on top." Our reproaches won't change him, because he doesn't know how to act any differently. It is something he has never been taught.

The incompetence of these directors is understandable. They have never been capable of being any different, since our country has long lacked higher and middle-level educational facilities for training specialists in the field of management. Only now has the first attempt been made to correct this situation: the Institute of the National Economy imeni Plekhanov has opened a special Center for Training Managers. But, understandably, we won't soon be producing any professionals. So what if the ministries' own experienced workers, who are skilled at paper games, stay on the job for the time being? They certainly don't mind. It is the enterprises who are managed exclusively by peremptory shouts and exhortations who are opposed.

Many people recall V. P. Kabaidze's brilliant speech at the 19th All-Union Party Conference. This general director of a major machine tool-building association's words—"I don't need the ministry!"—were greeted with applause. That is how the conferees expressed their attitude toward present-day administrators and toward the administration-by-command method with which none of the sectorial directors want to part. In short, hardly anyone these days needs to be convinced that the prevailing mechanism for forming and operating the central administrative apparatus does not meet the requirements of perestroyka. This is already obvious to everyone. Moreover, this apparatus has no interest whatsoever in any changes at all; it wants and will keep its position by any means possible.

However, this does not altogether mean that the central administrative body is not by and large necessary. It is necessary, and even very necessary! But we need the kind of body which meets the requirements of perestroika: one which is dynamic, efficiently organized, extremely small in number, and one which relies on economic management methods and a Leninist working style.

The central apparatus plays a tremendous role in perestroika, and success will depend on how future administrative "generals" conduct themselves.

This means that the principles for forming and operating the administrative body must be radically changed. These changes must be based on democracy, glasnost, promotion of such employees as administrators who are up to the objectives and tasks of management at the present stage and who are capable of taking upon themselves all the incredibly difficult work associated with restructuring the country's public-political and economic life.

The CPSU Central Committee and Council of Ministers decree of 17 July 1987 on restructuring the activities of the ministries and departments clearly defines the functions entrusted to the central apparatus. All the other functions previously performed by administrative bodies are transferred to the enterprises and associations. It is an excellent decree, but is not in fact being carried out. Up to now the organizational structures of the ministries and departments have not been brought into line, either with this document or with the USSR Law on the Enterprise (Association). The bureaucrats are defending themselves by their usual methods and will not surrender their positions without a battle.

What is this "battle" supposed to be about and where are the "heights" which will determine its outcome?

Until we can put staff our administrative bodies with people trained in the art of management in the appropriate departments and institutes (we have to wait five years for them), we need to bring those thinking, talented managers who suffered undeservedly during the period of stagnation into the administrative field. The primary virtue of a state institution employee should be professionalism, and not just the experience he gained during his tenure in the administration. I dare say that the practice of regularly raising the skill levels of each employee in the management courses, even if it is only done twice per five-year plan period, needs to be subjected to a legislative review. The results of training state institution employees can be directly coordinated with raises in their salaries. Anyone who has not taken training or who avoids it will suffer a loss of wages.

The work-force for the new administrative bodies needs to be selected on democratic bases, openly, by way of competitive selection. Definitely within a strictly determined time period, say, no more than 10 years.

What is hampering us most of all right now? The vicious cycle! In order to eliminate it, I feel that the collective ministry and departmental organs need to be replenished by 50 percent every 2-3 years. The problem of who keeps his job and who is replaced must be decided by the enterprises subordinate to the concerned department. It is mandatory that an age limit be set when choosing someone for a position. The upper age limit should be 50 years for women and 55 for men. This approach will create conditions helpful to systematically replenishing the apparatus and will protect it from stagnation, corruption and bureaucratism. The quota for older officials can be reviewed where necessary. But a quota, and not the presently prevailing practice, remains a "form of exclusion". This step will be helpful in more vigorously displacing those who do not meet the requirements of the time out of the administrative sector.

Certainly, the selection of a work-force, even on a competitive basis, cannot be made without recommendations. The practice of hiring by telephone calls and any other form of protectionism can only be abolished when the specific recommending manager or labor collective is made responsible for the actions of the person they have promoted. And so that no one can lead the recommending manager astray (such things actually happen!), each nomination will undergo a lengthy public review prior to the selections.

What do I have in mind? Our country's branched mass information system consists of the press, radio and television. If a director is elected to the central administrative body, publish the program he plans to use to assume the position. Do not limit information on the competitor only to enumerating his merits and previously-held positions. Report his initial productive activities, his training and family situation as well. The central apparatus, and thus the matter at hand, can only benefit by such openness.

Up to now we have only been talking about how to form an administrative echelon. But even the most ideal administrative body will get bogged down in bureaucratism if the principles by which it previously operated are not changed. Every employee, depending on his official position, has to make administrative decisions and to answer for them. Otherwise there is nothing in the administrative body for him to do but be evaluated by this or that bureaucrat. Moral responsibility for inactivity or making wrong decisions should be accompanied by material responsibility. Admonitions and "severe reprimands" will not help here. An enterprise which has dragged a matter out and has thus lost money should cough up the money out of its own purse.

Let the administrative body live on the principles of cost-accounting and earn its wages depending on the results of the work done by its subordinate enterprises. It will soon become apparent whether these enterprises are needed within the ministry or not. Then the ministry will not have to stamp its foot on a willful plant which does

not want to feed its own management. And the plant, having availed itself of the intelligent directions and the development worked out in the silence of the ministry office, will gladly share its profits.

Of course it is impossible to totally eliminate erroneous administrative decisions. But the number of mistakes can and must be kept to a minimum. To do this, all the directions, orders, instructions prepared by state institution employees should be appraised by experts in accordance with party and governmental directives and constitutional requirements. And it would be wonderful if every document generated in the bowels of the ministry or department could be protested in court by enterprises or any member of a labor collective. If we make this a part of our body of law, I think we could greatly diminish the flow of useless as well as simply harmful paperwork generated by the administrative apparatus.

Of course, setting up and operating a new central organization of ministry and departmental bodies is not a task which can be completed in one or two years. It will have to be worked on every day for years. And our future depends on how we set up this apparatus, whom we use to staff it and the methods we choose to carry out its activities. V. I. Lenin compared the Soviet economic apparatus to a watch. That is what it must be—accurate and reliable.

Petrakov on Socialist Market Problems, Monetary Reform

18200009a Moscow OGONEK in Russian No 34, Aug 88 (signed to press 16 Aug 88) pp 6-8, 23-24

[Article by Nikolay Petrakov, corresponding member, USSR Academy of Sciences: "Commodities and the Market"]

[Text] Money can only become money, that is, a genuine measure of costs and results, in a balanced market. A market which has no goods, or which is plagued by shortages—is not a market, but is like roasted ice, or a square wheel.

A Prisoner of Scarcity

Everyone who has come into contact with our market has grown weary with it. Economic executives have been complaining about disruptions in supplies, the unreliability of suppliers and the poor quality of raw materials for ten years. About the population, nothing can be said. Goods are no longer sold here, but "dumped"; they are no longer bought, but are "obtained." The joke about the line being the socialist approach to the counter is still topical. However, it is no joke when tens of millions of Soviet people encounter situations in which they have money, but there are no goods; or there are goods and the people have money, but they need some coupon or permit or other, or a certificate for the right to

purchase..., or else there's an information sheet from the Registry Office (about a couple getting legally married), which is actually an "invitation" to a special store.

What species of exotic procedures for producing and distributing goods and services are these? On the one hand, they say that the better you work, the more you'll earn. On the other hand, it turns out that it is not all that easy to turn earnings into needed goods. Sometimes it is simply impossible.

Some Soviet economists used to believe (and still believe it, but are keeping quiet for the time being)—that this system of relations is one of socialism's fundamental advantages. Western sovietologists suggest that this is the main flaw in the socialist economic system. But they, and others, are pathetically unanimous in their view that the method, natural in essence and monetary in form, by which our economic life is organized, intrinsically typifies socialism, and that the "normal" market and socialism are mutually exclusive. In sheer panic, advocates of conformity to the plan shriek, "Market elements!" We note that this is the same "conformity to the plan" which led us to the brink of crisis and to the depressing disproportions and bottlenecks, one list of which took up dozens of pages of the party and government documents which appeared after March 1985.

Why elements? Because planning the volumes, products array and quality of produced output and the monetary revenues of enterprises and the population, i.e., all the factors on the supply and the demand side in a scientifically substantiated manner, is conformity to the plan, which is understood as a constantly and consciously maintained proportionality. Scarcity, production of unneeded or poor-quality output, lines, increased unfinished construction, and money not secured by goods—all these are elements, and anarchy, no matter how much they are sworn by as advantages of the planned system of economic management, and no matter how much they are corroborated by national economic, republican, sectorial, etc. plans.

A balanced market creates conditions crucial to effectively implementing the fundamental principles of socialism and the idea of social justice. Before anything else, this has to do with the law of distribution according to work. Wages, no matter how perfect they are and no matter how accurately they have reflected every worker's contribution toward achieving final results must be exchanged, not in general, and not on the average, but for the specific goods which are in demand. Otherwise, the entire structure of material incentives and economic interest is pulled down.

"Arkhangelsk peasants," family and other contracts, and cooperatives will remain the only beacons providing nourishment not so much to the population as to journalists and writers, if their high wages, which are irrigated with sweat and blood, cannot be turned into fashionable and good quality industrial commodities,

construction materials, vacation authorizations to sanatoria, and cruises. Socialist self-administration, which conflicts with the fact that an apartment house for workers cannot be built with the wages they earn, nor can new equipment be bought, is bogging down. For years we have underestimated the salubrious democracy of the honestly-earned ruble, forgetting that it only shows up in a balanced market and that all the mortal sins have been associated with commodity-money relations. As have speculation, corruption, illegal business and materialism.

In reality, things are not as they appear in the directive political economy textbooks, which were saturated with the ideas of Stalin, which he set forth in his "Economic Problems of Socialism in the USSR." This work became the peculiar bible of economists even prior to its appearance in print. Initially, it is assumed, these divine revelations were brought to the attention of the select few who prepared the text of the textbook. The textbook itself was meant as a catechism for bringing unanimity of thought into economic science. The ground for this act was prepared long ago. The bright intellects of economic science had passed from the stage by this time, and had been "evicted" from life or from science. Incidentally, the economists also had their own presents, and there were Galileos among them. But by the beginning of 1951 the proving ground for the clairvoyant had finally been cleared. The younger economists, who had been brought up with a nihilistic attitude toward the achievements of their predecessors, awaited a miracle. And the miracle occurred in the form of a small brochure which, although it declared the law of value to be objective, said it was "not ours." This is why this law and the sphere of its action should be restricted and used only where socialism still continues to make forced concessions of immature kolkhoz-cooperative property as well as private property (clothing, furniture, baby carriages etc.).

But if we direct our energy at combatting the law itself and allow ourselves to avoid dealing with objective reality, then we thus create a surrealistic economic world which surpasses by ten-fold the most unrestrained fantasies of Salvador Dali.

A world is emerging in which it is more profitable and prestigious to beat a dead horse than to perform an extremely delicate surgical operation; where incentives for the responsible work of administering entire economic complexes are paid more often in sausages, carbonate and steaks than with money, where there are low prices for goods not stocked in stores, and where expensive, but high-quality goods periodically show up in the trade system on the last days of the month, quarter and year; a world in which it is more profitable to use up resources thoughtlessly than to economize them, because the latter creates excessive stocks for the subsequent planning period or lowered indicators for rates and volumes; and, finally, where the report on the result is more important than the result itself, production is more important than the consumption for which the production itself was set up.

Scarcity is an economic disease of socialism. It is time we ourselves spoke aloud about this. Aloud, because all the sensible Soviet economists have been talking about it for decades, and these days it is not only economists who are talking about it; it is up to us to talk about it because the entire world is sounding off about the scarcity aspect of the Soviet economy, and using it to frighten the third world, not to mention the deliberate devaluation of socialist ideas among the progressive forces in developed capitalist countries. Yes, scarcity is a disease, but one which socialism itself can cure. A real way to cure our economic ailment, which is giving our ideological and political prestige a pounding as well should not be by retreating from socialism, but by eliminating its distortions.

One of the main distortions in the field of economics is the negation of the obvious fact that in specific conditions of socialist collectivization of production resources, the law of value and the market operate in favor of socialism. The problems of maximum saturation of public and private needs, of ensuring genuine conformity to the plan and of fair distribution according to work can be solved only by setting up and constantly supporting a balanced market, by normalizing monetary circulation and by securing a solid exchange rate for the ruble.

Hundreds of pages have been written about bureaucratism in recent months, and there is also the special, brilliantly written resolution from the 19th Party Conference on this subject. Thus the only way I can show the reader that economic bureaucratism possesses the standard features of this phenomenon of public life is by emphasizing this profound counterpoise to the market. First among these features is the hyperconcentration of power in the regulation of economic resources. Second is the lack of personal liability for making specific decisions and formalizing a staff's (read: clerk's) opinion as an opinion of instances invested with public confidence. And third is the complete impunity for consequences of their actions, which are unfavorable to the state, simply because there is no mechanism for economically punishing an erroneous policy of economic operation (please do not confuse this with administrative punishment, which is usually for insubordination to orders and directives from the upper levels, and which has little in common with liability for harm done to the national economy).

Thus it is impossible for the economic bureaucracy to see itself playing all three of the above-mentioned roles when there is an efficiently and implacably operating economic mechanism which promptly reacts to any moves which go against the imperatives of economic laws. In order to untie our hands, we need first of all to discredit this mechanism, after having shifted the blame for all the misfortunes caused by incorrect economic decisions, incompetent economic tactics and strategies onto it. We are witnessing excessive increases in state expenditures, with economic obligations being covered by an incessant outpouring of money signs while not being covered by

the corresponding commodities. Here, the bourgeois law of monetary circulation, which impedes the construction of socialism, is guilty. Speculation is on the rise and black-market prices are inflated, the purchasing power of the ruble is declining—and what is more, this does not merely violate the fundamental laws of reproduction, but frustrates the law of value and interferes with the policy of ultra-high industrialization rates. Material interest in increasing labor productivity is waning due to the impoverishment of the consumer market, the slowdown in light-industry growth rates and the degradation of agriculture, which implies that the workers' petty bourgeois, narrow-minded consumer mentality and worship of the Western way of life has not been completely eradicated. And so it goes, endlessly. The thief cries, "Stop, thief!" And people fall for this simple ruse over and over again. And the politicians wring their hands and pronounce the verdict: "What a poor law of value, but for the time being we have to keep it and use it...for our own political ends."

From Feudal Peasant Labor to Quit Rent

When I was attending the university, our political economics course was taught by Professor Kozodoyev, an outstanding personality. Because of his strictness, hair-splitting and his refusal to allow appeals, many of his students did not like him. And he loved the theory of ground rent. He taught this part of the course with particular artistry, as one inspired, enraptured. He took special delight in explaining to his students how the forms of mutual relations of landowners and peasants had changed historically and how these changes had affected the expansion of production and the strengthening of economic interest in using land zealously. Feudal labor services were widely used and consolidated in Russia for centuries. The peasant spent several days a week working off his obligation in the landowner's fields, and during the remaining days he worked on his own holding, which was actually his to use. From the point of view of the efficiency of agrarian labor (not to mention the social-humanistic side of semi-slave worker exploitation), feudal labor service had a great many negative features. The peasant working the landowner's field naturally made no attempt to "give his all," and literally worked under the lash. Peasants had to work under the vigilant gaze of a variety of overseers and controllers. An involved system of punishments, and individual as well as collective responsibility, had been developed. This total and scrupulous supervision over the forced labor of the serfs sometimes took on comic forms. Remember the harvest scene in the Larin farmstead:

In the maidservant's garden, in the beds,
We gathered the clustered berries
And were made to sing
(So our lips
The lordly berries
Never tasted, but instead gave forth
With song:
O poignant country caprice!).

However in time, even the conservative Russian landowner, not to mention the "enlightened" western feudal lord, realized that keeping watch on clamorous country dwellers and maintaining an army of overseers was fairly costly. The ship of our economy made a decisive tack on the verge of the thirties and set a course for a feudal-command administrative system, not only in the agrarian sector, but in the national economy as a whole. This course was followed for 10 years, and became normal and commonplace, not only for captains, but for those of lesser rank as well, even including the sailors and sea cadets. The April (1985) Plenary Meeting of the CPSU Central Committee caused the active "passengers" and the critically thinking members of the "crew" to have doubts about the effectiveness of this infallible method of involving the people in the process of building socialism.

Now we are all saying that we need economic administrative methods and greater democratization, i.e., socialism, and that both motivation and responsibility need to be increased. And we assert quite sharply that the state is not responsible for debts incurred by enterprises, nor are enterprises answerable for the state's obligations. Of course, this does not mean that the mutual obligations of the state and labor collectives are disappearing. On the contrary, these obligations are clearly fixed, but are straitened within legal limits, beyond which "friendship is friendship, but you smoke your tobacco and I'll smoke mine." This is essentially a reversion to Lenin's tax in kind (first to tax-in-kind, and then to quit rent). Let's finally call a spade a spade.

These days, the analogy to Lenin's New Economic Policy is on everyone's lips. Onward, they say, to the NEP! However, they forget that to turn the ship of state around to the quit rent ideology is considerably more complicated than it was at the beginning of the twenties. It seems a paradoxical corroboration. For in those days, there were poverty, devastation, counterrevolutionary elements (not imagined by the greatest genius of all times and peoples, but real). We have none of those problems nowadays. But nor do we have the peasants, who had become one with the nurturing earth, who were prepared to spend day and night on their holdings to save the crop and lay in feed, who were prepared to fight to the death for this same earth and to vanquish the well-trained army of Denikins and Wrangels, to turn their backs on the mutineers and anarchists and stand up for a just and steadfast authority which guarantees the peasantry free use of the land. Also, it is now difficult for the initiative-filled people who know, not so much what they are being paid to do, but how to run an economy in the fundamental sense, and who are not guided by the mood of their superiors or the momentary condition of a market plagued with shortages. Those administrative practices which were based on a flexible and finely-honed financial policy have practically disappeared.

For years we "reproduced and printed up" specialists and directors who simply felt no need for economic methods, and what's more, felt that such methods were

contraindicated. It is not their fault, but our common misfortune, since our conversation about restructuring the system of managing the economy is moving into the stage of practical actions. This is why, looking truth right in the eye, we should admit that the innumerable armies of administrators not only need to be reduced in strength and reorganized, but retrained as well. And the complexity of the present situation lies in the fact that these are precisely the people who already hold some post or job in the administrative hierarchy and who need on-the-job retraining.

The fact is, they see their subordinate labor collectives as foolish and obstreperous children, or see themselves as the real "servants of the people."

Artistic and documentary films, letters from kolkhoz and sovkhoz fields, novels and scientific tracts have long tried to convince us all that a worker and a production collective have no greater joy than to part with the fruits of their labor. Up to now, convoys of trucks filled with grain, cotton and sugar beets have travelled triumphantly, banners flying, on our film and television screens, across country to the storage depots and grain elevators. The celebrating and rejoicing are shown in a close-up, but the payment for turned-in output is made off-screen. I am not urging the documentary makers to start filming bookkeepers instead of grain truck convoys. No, this is a truth of life, and is the philosophy of a contemporary administrator. The main thing is that an account be made. The more you take away, the better you work. This is why it is no disgrace to take away 90 percent and then transfer an enterprise's convertible resources into the budget (when there are no profits). It is so normal to cut back a plan, and then a second plan, and still to lay hands on a family fund. Later, it's true, the necessary resources can be allocated from the budget or the state reserve. But the administrator personally determines the necessity of doing so. And the main thing is that it is as though he were granting the producer the mercy of the state, to whom the producer is, if not materially, then morally indebted from then on. And he is also in debt to the specific distributing party.

Exorbitant taxes which transcend the bounds of social justice and economic reason are essentially the same as feudal labor. Thus, when it is a case of changing over from military barracks methods of managing production to economic methods and, particularly of using economic norms for distributing incomes and a tax system, it is important to remember that this is still not a panacea for all economic woes. It is only an external and certainly a necessary form which needs to immediately be augmented by the appropriate economic content, so that the form itself is not immediately discredited. And its content consists in a radical change in the approach to understanding the system of mutual relations between the functional links of a vital economic organism.

There is no argument that public ownership of the means of production is the cornerstone of the socialist economy. It is obvious as well that the socialist state plays an

essential role in the life of our society as well as in the organization of the economy. For all that, what role should the state official play here? In fact, the public, i.e., the production collective, i.e., the worker—are the primary characters in this play. The structure of their mutual relations is crucial. Under certain economic conditions the public entrusts a portion of the national property (rent with a previously stipulated payment amount for production resources—the land, buildings and equipment, placed at its disposal) to a specific labor collective.

A member of a labor collective has the right to monitor the economic activities of the administration he helped to elect, and by and large to take an active part in controlling production, all of which is stated in the Law on Enterprises. But what precisely is an official? He is someone who wishes to play the role of society "in their name and on their instructions," so to speak. That is ideal, but who provides for him? However, he bases his actions on the well-known aphorism "Power is not given, it is taken!" And since his defacto power is a holdover from the previous stagnant and pre-stagnant times, the official's position appears to be a peace-loving, or at least a non-aggressive position: "Now then, get rid of it!" (the so-called confection, which has not been sold widely for a quarter of a century). And in very point of fact, the official's part in this economic play is strictly secondary: he is not the producer, nor did he write the script, but is rather the prompter, the man in charge of lighting effects, the stage manager.... I don't know if the reader will agree with my impudent analogy, but I am one hundred percent sure that it will make the official's blood boil. And, unfortunately, he will be right. His fundamental position with regard to organizing a real "materials exchange" and the vital activity of the economic organism has remained practically unchanged. All that has occurred is today's moral devaluation of the administration by command methods of leadership. And that is barely sufficient, if you consider the public and political pressure which has been put on these methods in recent years, on the "furious approach" taken by journalists, scientists, enterprise and kolkhoz directors and cooperative operators and, finally, on the quality of the main battery weapons the party conference delegates used to bring down their fire on the heads of the directors of sectorial ministries and economic departments. But the ministries held their tongues and the orators drove around to the workplaces. However, let us not run to extremes in our role as witnesses to this stubbornness on the part of the bureaucratic machine. We need not meekly bow our heads before it as though it were omnipotent. Nor need we panic and seek new concepts for restructuring the management of our economy. The concept of the June (1987) Plenary Meeting of the CPSU Central Committee is exceptionally capacious and purposeful. At present, we need not think up new schemes for restructuring economic life, but it is important that we isolate the main link and properly assess the situation. The political reforms soon to be implemented are fully in accord with the decisions of the 19th All-Union

Party Conference, and no doubt will create "most favored nation treatment" for the future development and practical realization of the program of the June Plenary Meeting of the CPSU Central Committee. Nevertheless, this incontestable fact should not serve as grounds for reanimating, on a higher level, the "that's not my department" system of shunting petitioners off to apply somewhere else. They say, let the political scientists and lawyers work it out, and we economists will await the results of this buck passing. Enough of these games.

In order to come up with a fundamental solution to the problem of transforming the feudal-command psychology and eradicating it from our consciousness as well as from the consciousness of those in the higher and lower-level administrative hierarchy, we need, along with the rest of the world, to bring all our weight to bear on carrying out the single solitary (but terribly complicated) task of strengthening—no, that is an unsuitable term, since it is not a case of supports—of restructuring our country's **monetary system**.

The ruble, which does not have universal equivalent status, cannot be used to reliably support the restructuring of our economy. The sole, and powerful, you could say, unconditional justification of the official's domination in the economic life of our country is the rationing system, direct full-scale distribution of resources (even if formally clothed in monetary dress). No matter how angry Comrade Kabaidze was with the officials, the ruble earned by his association will not purchase everything the association needs and he will bow to them (the officials). And he will use his speech to the party conference within the framework of the administrative-command framework form of interaction with the superior economic organs. Just try, they say, not to allocate funds to me now for one thing and another, when I have provided you with the shelter of this high rostrum! The cunning Kabaidze is really a fine fellow. But in fact, both he and dozens of other association directors know that the earned ruble is a baby's pacifier if the official is not taken by the throat or via a roundabout way (for example by breaking right through "to the top" with a petition). But is this a good way to live? A bad way, of course. Then let's talk about money: money we don't have, but if we did, we wouldn't buy anything with it, or wouldn't buy what we want.

Step Aside, Here Comes the Soviet Ruble!

Earlier on, I reminisced about student years, but I have been just as profoundly impressed by "economic" recollections since I was of school age. I completed my elementary schooling at the time the celebrated post-war monetary reform had been carried out. Ration cards had been eliminated as well. The ruble was made of gold. This was unusually prestigious, but obviously unrealistic. Naturally, at the time, I understood none of this. But a poster, in Krokodil, it seems, remains etched into my memory: a rosy-cheeked young boy is walking along an

asphalt road, and in the ditches, there are blue and green decrepit old men and women. The word "ruble" is written on the boy and "dollar," "pound sterling," "franc," "lira," etc., on the poor devils in the ditches. So what I'm saying is that it was all right for even a schoolboy (or perhaps all right for only a school boy) to see this. But in any case, it was unusual to see this after the war, and that is probably why it stuck in my memory. It wasn't a tank or a kolkhoznik with a sheaf of wheat going along the road, but the Soviet ruble! Splendid! But it all ended there. Time passed. "It was time, and prices fell," and for some reason it is now quite fashionable to refer to the childhood recollections of Vladimir Vysotskiy. Obviously, the older generation remembers that prior to these legendary price cuts, prices had soared 2-3-fold, or almost up to the level of the so-called commercial stores.

Well all right. They went down—they went up; they went up and then down. That's not the point. The main thing is that the ruble was a fairly good standard unit of measurement of expenditures and results. There is no need to prove this to the Soviet reader. But perhaps it is worthwhile to gain an understanding of why the post-war efforts to strengthen the monetary system were not expanded. The answer is rather obvious. It is because there were no intentions to change the command-feudal system of controlling production. Stalin had no intention whatsoever of expanding the sphere of commodity-money relations or of using either the market or cost-accounting to strengthen the socialist economy by expanding initiative or interest in the final results of production. He asked himself the rhetorical question, "With our socialist structure, can the means of production be perceived as a commodity?" His answer: "In my opinion, it is absolutely impossible." But in agriculture, the strategic policy was seen as a complete rejection even of commodity forms and as a changeover to an in-kind exchange of products. "In order to elevate kolkhoz property to the level of national property," wrote Stalin, "we need to exclude surpluses of kolkhoz production from the system of commodity circulation and make them part of the system of products exchanged between state industry and the kolkhozes. This is the gist of the matter." So that the subsequent monetary reform had extremely limited objectives. It was not the result of striving to create a strong basis for changing the system of control over to modern economic methods. No, Stalin's ideal was socialism with a feudal-cum-command model for controlling the economic processes. The procedures for controlling production should have been unified with the principles by which the links in the superstructure hierarchy interact. Stalin did not understand Vladimir Ilich's joy that the NEP made it possible to find "that degree of unity of private interest, private trade interest, its inspection and verification by the state, and the degree to which it is subordinated to common interests, which had hitherto been a stumbling block to many, many socialists." This stumbling block was no obstacle to Stalin's proposals regarding the socialist mechanism for managing the economy. He operated by a

different logic, within the framework of which the stumbling block was none other than the NEP. And it was thrown off the road. In those days, this was the typical way to resolve conflict. Instead of seeking agreement in the dialectical unity of the individual and public interest, he employed mechanical destruction and repression of one side to please the other. But this only gives the illusion of resolving conflicts. Undermining individual motivation distorts public interests and turns them into departmental, group or clan interests.

These days, we have come back to an understanding of the need to combine the personal and the public, "mine" and "ours," the private and the collective in a real and vital sense. And money and the hard ruble are no longer needed as mere stage dressing, but are strictly necessary to solve this problem. "It will help us succeed for a long time, and as a result will always stabilize the ruble, which means we have won... Then we can set our economy on solid ground and develop it on solid ground." These words of Lenin are so topical, they sound as if they were uttered yesterday rather than two-thirds of a century ago.

In order to bring this Leninist precept to fruition with any degree of competence as things presently stand, we must first bear in mind that the Soviet economy has been expanding with ever-increasing inflation for ten years. This inflation has its own special features in contrast to similar processes in capitalist countries. This is why economists use different terms—"repressed," "deformed," and even "postponed," when referring to it. But it is still inflation. It is important that this be emphasized, because it was not so long ago that using this term in Soviet economics was almost considered ideological sabotage. Nowadays, this phenomenon has not only begun being called by its own name, but is being studied as well. The volume of our monetary mass constantly surpasses our supply of commodities. The state's attempts to delay price increases which are inevitable in these conditions have not always been successful, and where they have been, new and sometimes unforeseen negative consequences have occurred. More than anything else, they include speculation, i.e., the same price increases, but in the black market rather than in the state sector. This leads to a redistribution of revenues among honest workers and second-hand dealers, who have gotten richer in direct proportion to the degree to which you and I grow poorer by overpaying.

Another consequence of unbalanced supply and demand is the deterioration of quality and the counterfeiting of products and services. There is no formal increase in prices, but taking the deterioration of quality into account makes it seem as if there is. For example, if you can use only one-third of a three-kilogram package of potatoes for cooking, it is a simple matter to figure out the real price. Then, impoverishing the array of goods and services leads to so-called forced savings, when money is set aside not for a "rainy day," and not to buy some big expensive item in the future, but because people don't want the available goods and hope they'll

have better luck later on. True, they don't usually get lucky. Since 1970, the amount of money deposited in savings banks has increased more than 5-fold and presently comes to over R260 billion. And, of course, the "classic" symptom of the socialist version of inflation is the line. More satirical songs and jokes have been written about the line than about mothers-in-law, and more legends and cock-and-bull stories than about flying saucers.

Thus, the next step needed to advance the matter of restructuring the economy is the implementation of a number of vigorous anti-inflationary measures. Some people propose currency reforms like those of Stalin (1947) or Khrushchev (1961). This is incontestably a revolutionary step which excites all strata of society without exception, but it is economically effete and politically questionable. Any one-time currency reform undermines the population's trust of the state to some degree, and shifts even if only a portion of the economic "sins" of the latter onto the workers' shoulders. Such are the minuses of this reform. And what are the pluses? They will begin disappearing on the spot, on the last day, month and year, if the channels through which the surplus money reproduced in our economic mechanism are not cut off. There are a multitude of ways to rouse even a seriously ill person and get him up out of bed for the day, but we need remedies which will bring him to full health, hopefully with the least degree of shock. The experience of a great many socialist countries which have at various times used economic management methods attests to the fact that avalanche-style price hikes and rapid currency devaluation will start up in our economy. Neither Poland, Hungary, Yugoslavia or China escaped this. Not only do these processes need to be thoroughly analyzed, but a combination of measures to block the spread of negative phenomena need to be developed and implemented. The June (1987) Plenary Meeting of the CPSU Central Committee set the task of working out a program for bringing our economy to a state of financial health. A number of departments are presently working up a draft for this program. Unfortunately, in the "best" traditions of the period of stagnation, the economic scientists have been kept from taking part in this work. Apparently, an old stereotype is at work here: the more important the problem, the more secrecy its development needs to be enshrouded within, and secrecy is easiest to ensure when the circle of those with access to the sacrament is sharply restricted. A similar behavior "model" can be observed in the preparation of a price reform (particularly retail prices). Well, what if inaccessibility to the holy of holies of preparation of official plans allows the airing of unofficial thoughts. I want to share these thoughts with our readers.

The first order of business for resuscitating our monetary economy is to drastically cut excessive expenditures. For the other side of scarcity is surplus money which is being pumped by various means into the economy.

When this question is brought up, society usually looks immediately at the vast army of administrators and

officials. There is no doubt that this army's ranks need to be thinned, even though God forbid that we fall into an ordinary administrative rage here. In fact, we have already had unfortunate experience, when year in and year out quotas aimed at reducing AUP [administrative-management personnel] have come down from above. This has, on the one hand, placed enterprises in difficult and sometimes irrational conditions, and on the other hand has done absolutely nothing to stop the country's drift toward increased numbers of administrative personnel. However, when we talk about excessive state expenditures, we must remember that the inflated administrative bodies constitute only a small portion of this amount.

This squandering stems primarily from the incorrect policy of capital investments which has been developed and implemented from five-year plan to five-year plan at the behest of departmental interests. Both economists and journalists have finally begun talking about this at the top of their voices. V. Selyunin, O. Latsis, Ye. Gaidar and V. Yaroshenko have uncompromisingly laid this problem bare. But what elements of their analysis pertain to the monetary economy? The inefficient structure of our production capacities forces us to overpay more and more for each percent of growth in final results. And how we have been building these capacities! For decades! In 1986, the volume of unfinished construction of production facilities amounted to R157.5 billion as opposed to R132.8 billion in 1980. Thus the average annual amount of "unfinished construction" is increasing by R4 billion per annum. And in fact, almost 30 percent of this money is used for construction workers' wages. The monies are paid out, and putting the facilities into operation is postponed year after year. In this connection, many investment projects need to be thoroughly reviewed, and the appetite of sectorial ministries needs to be curtailed concerning new construction. In his report to the 27th CPSU Congress, N. I. Ryshkov advanced a thesis regarding the advisability of temporarily shutting down construction projects which are in fact not being supplied with materials and manpower resources. This policy needs to be implemented most resolutely and on a large scale so that the freeing of these resources is tangible and substantial.

Freed assets need to be concentrated on a strictly limited number of those projects which actually determine the pace of scientific and technical progress.

Second, most of these monies should be used for the complete technical renovation of many light and food industry enterprises. It should not be a case of "improving" operating production facilities, but of radically and qualitatively changing their production methods. To this end, a great many enterprises should be completely renovated. Shutting a production facility down for 1-2 years while paying full wages to its employees is a necessary payment for manufacturing stagnation with regard to defraying the population's incomes with goods. And it is not as great a payment as it seems at first

glance. It is better to pay full wages, which have not been earned, for a certain period of time than to pay wages for manufacturing output no one needs, plus the expenditure of electric power and what are frequently high-quality raw materials, the costs of machine tool depreciation, etc. It is better for now to share these raw materials and equipment with cooperative workers who know how and want to do good work, but who are presently cut off from the means of production.

To continue. The role of the banking system in controlling production needs to be changed radically in the shortest possible time. Practically free loans "for the plan", which have been sent down to associations and enterprises in real indicators, have had a lot to do with turning money into the only non-scarce commodity. It is time to heed the words of V. I. Lenin who thought of banks as "the centers of contemporary economic life, the main nerve ganglia" of the economic organism. Credit resources should be used for the most effective purposes and should be backed up by material support. It should be made a law for material and technical supply organs that monetary assets borrowed from the state (bank) are "bartered for goods" immediately and with no limitations whatsoever. And enterprises pay for this guaranteed supply with a high rate of interest on the bank loans. This action would sharply elevate the role played by banks in the production control system. This would be a real step from words to deeds. The bank should renounce its present function as the all-union office for insurance against poor work. How much can the remaining enterprises and the collapsing kolkhozes and sovkhoses pilfer from the loans? Their unreliable debts depreciate the ruble no less than construction periods which drag on to absurd lengths. How much can our state budget be replenished with loans? At long last, the 19th Party Conference has begun calling a spade a spade. The myth about the country's deficit-free budget has been dispelled. This myth has, in fact, been promulgated every year in the minister of finances' reports to the USSR Supreme Soviet. The deputies listened and unanimously approved last year's budget with its unchanged surpassing of revenues over outlays. And not a single one of the people's envoys asked how such considerable disproportions in the economy have been concealed, how it is that losses of agricultural products can amount to one-fifth of the harvest, that the United States is pressing on with the arms race and how it is that the country's budget stands with lordly and isolated majesty? And we are still plagued with revenue shortages because of the "alcohol policy" and there is the Chernobyl tragedy which, among other things, has caused tremendous economic harm. And the budget, as though it were made of rubber, cares not a whit, and outlays again exceed revenues. The ministers of finance can do everything. Including counting debts as revenues. It's a good thing that formally it is the debt which belongs to another state institution, i.e., USSR Gosbank. And where is Gosbank going to get the money? It is an interesting question, but the answer is obvious—the money will come from the people.

But the budgetary policy needs not so much to be complained about as decisively changed. Our budgetary system presently looks like a huge pumping system, conscientiously and doggedly pumping the revenues earned by efficiently operating enterprises and sectors into useless expenditures for the unreliable remainder. This is known as pulling the laggards up to the level of the leaders. In doing so, an area of silence has been intentionally created around the fact that the leading enterprises, stripped of everything, have slipped down alongside the average enterprises, and then to the level of the laggards in the rear. Patriarchal-communal traditions can be clearly seen in this economic policy; however, it is still unclear as to where there is any of the scientific and technical progress we have been trying for years to conjoin with the advantages of socialism? The budget, if it truly serves the state rather than the ministries and departments, should be used exclusively to finance strategic scientific and technical programs, including programs related to defense and social infrastructures. In order to execute these functions, it is enough for the budget to "pump" half or one-third the amount of money it now does through the revenue and expense columns. In practical terms, this means reducing the taxation time for efficient production areas.

It is time we understood that not only can cooperative operators and private traders be strangled by taxes, but technical progress and the entire policy for raising the workers' standard of living can be stifled as well. I shall provide one example to illustrate this thesis. At the end of the 1960's we, along with all the scientifically and technically developed countries of the world, set about working on industrially perfecting color television. At the time, we were second to none in this field. This is evident in our having jointly developed the Sekam system with France. This was done on an equal-rights and mutually advantageous basis. We were keeping pace, as they say, with the entire world. And what about now? France is manufacturing hardly any black-and-white domestic televisions, only color models. In 1986, we sold 8.6 million televisions, only 4.1 million, or less than half of which, were color sets. Is the technical sector at fault? No, it is the fault of our economy, which year in and year out has supported high prices for color televisions thus restricting demand for them. At the same time, also year in and year out, the high revenues brought in by the color television manufacturers were put into the budget and allocated wherever it was convenient, only they were not used to develop the very production which had brought in such considerable revenues. And then we are surprised when our televisions blow up and almost every third set has manufacturing defects (and at these prices!).

And here we come to another problem which is closely related to strengthening the status of our ruble. I refer here to the problem of the justice of lawful incomes. Lawful incomes means incomes not derived from speculation and secret deals, but which are sanctioned by the state. Few people doubt that our system for setting wage rates and honorariums is hopelessly obsolete. I would

like to address one extremely important fact. The principle of awarding labor rather than its results lies at the basis of the present-day system of wages and the numerous vain attempts to improve it. This seems like a petty detail, but it reflects fundamental differences in understanding the socialist principle of social justice. If everything is planned from above and there are orders on what sort and the amount of work to be done and the degree of zeal with which it is to be done, then the prescribed wage rate also pays for the result. Here, the result is understood as strict and unquestioningly complying with the requirements of the superior body, and by no means meets the needs of the customer or the population. As we see, this is die-hard feudalism. It has only changed its skin and is trying, unsuccessfully, to dress in socialist clothing. The lesson assigned from above has been learned. And nothing has changed. The output has been put in the warehouse and the wages, along with the bonus, have been put into the pocket.

The public has responded with great understanding to the call to combat unearned incomes. And this is natural. But it is permissible to ask: can the wages earned by a worker who produces defective goods (such as, for example, the spontaneously-igniting television sets), or who produces output for which there is no demand, be considered as earned income? According to the outlays for labor regulated from above—yes, and according to the results, and the contribution to the national wealth of our socialist society? This is precisely the point. We need to screw up our social courage and display our political will and stop paying for useless labor.

Right now, when under glasnost people want to know the particulars about specific parties guilty of manufacturing poor-quality output, the depressingly similar arguments of the slipshod workers who are apprehended drone at us from the pages of our newspapers and from our television screens: the subcontracting plants are to blame! But if we uncoil the manufacturing chain, then we are all subcontractors, and each of us bears our own burden of guilt. Recently, the lease contract, which is the second, or last cost-accounting procedure, has been widely popularized (from the family to the large-scale enterprise's labor collective). Experience in these areas have, as a rule, produced startling results. In fact, the secret is exceptionally simple: one needs only take care of business, and not spend time explaining why nothing has been manufactured, or why it was poorly manufactured. When these procedures are used, explanations make no sense, because the vicious cycle of mutual responsibility is broken when an administrator who has permitted an error accepts and pays for output which no one needs on the national account and the enterprise, having received its wage fund and profit in full, pretends to be unaware of the censure from customers.

This sort of plan for interaction between superior organs and executive officers will keep labor productivity from outstripping wages, no matter how many exorcisms are performed, no matter how much the general wage fund is limited, and no matter how closely the regular schedule and bonus "ceilings" are observed. Labor productivity

will begin to distance itself from wages, as Vladimir Kuts did in his day from the Englishwoman Piri, and as a consequence, the growth of the commodities mass will substantially outstrip the money mass if **all wage limitations are removed**, and one criterion will remain: the final result.

Three Markets

Money can only become money, i.e., a genuine measure of costs and results, in a balanced market. A market which has no goods, or which is plagued by shortages is not a market, but is like roasted ice, or a square wheel. Economic interests not backed up by the ability to purchase everything they need with the money they earn (even at high prices), almost instantly become foreign economic interests, and the principle of effectiveness is replaced by departmental "expediency," and cost-accounting independence evaporates at first contact with territorial material and technical supply organs.

Understanding this reality has led to the appearance in party and governmental documents of a clear formulation of the need to balance the currency mass and the supply of consumer goods and services, as well as to change over from distributing allocated resources to wholesale trading in the means of production. Thus, the policy of setting up a **commodity market**, in the broad sense of the word, has been adopted. It is a case of changing over from centralized fund formation and distributing consumer goods and the means of production, to free trade in them. For decades, combining the words "free" and "trade" brought forth an explosion of anger from our dogmatists, because their synonym for freedom was always the word "element". But what it actually means is granting the consumer the right to freely choose these or those material blessings within the framework of their available incomes and established price levels. This ensures the sovereignty of the economic subject, and the extent to which he is protected from the "freedom" of the official to treat the consumer any way he wants. The market provides for the democratic expression of the will of those participating in the economic process. In this sense, forming a market is not so different from "reforming the electoral system" in the economic sphere. Is there an alternative to this movement? The sole, and apparently unacceptable, alternative is to return to neo-feudal forms of mutual relations, to restoring and reinforcing the personal dependence of the worker on the administrative apparatus in general or on the specific individuals personifying it. One need not go far to prove that such a regression is possible. It suffices to recall the mechanisms involved in the emergence of organized crime. Here, not the least role was played by the economic mainsprings which made the omnipotence of the total "super supply center" system officials the perfect substitute for market freedoms. Let us listen attentively to the criminals' confessions. Former First Party Raykom Secretary Primov: "I was appointed administrator of the regional Selkhoztekhniki [Agricultural Equipment Association]. I struggled for

two years, to no avail. And do you know what would happen to me if no equipment or spare parts, or if not even a single nail was manufactured? The learned deputy hinted for me to give a little something to this one and that one up above. So for the first time in my life, I made payoffs. And everything changed, just like in a fairy tale—stores of treasure poured right down on me after all." (PRAVDA, 17 July 1988). Former Oblast Committee of the Party First Secretary Karimov: "When you're giving an ordinary bribe to Rashidov, you think 'Have I only insured my own official immunity?' No, I knew that this would turn into an immediate profit....I receive funds and materials and set up my business—a plus for me and for the worker as well. But in distributing these same funds and materials to my subordinates, I knew I was covering my costs."

Of course, they can take exception to me: what does the system for controlling the economy here have to do with the Mafia flourishing in the West? Well, in the first place, the western Mafiosi are involved in illegal or semi-legal business, i.e., business which is prohibited or sharply restricted by law: narcotics trafficking, prostitution, arms trading etc. It is difficult to imagine the illegal business clans cobbling together spare parts for tractors and combines or the reinforced concrete panels used to build dairy bands on the basis of a distribution system. Second, I only use those who have fallen to the very pit of moral corruption as an example to show where the logical development of events can lead if the chain of economic deprivation of choice is unrolled to the end. Of course, the opportunities for abuse represented by the centralized rationing system of distribution have far from always been fully used. But even this does not eliminate the fact of the very real, day-to-day dependence, for example, of a plant director on the will or willfulness of a minister, ministry administration chiefs, Main Administration of Materials and Equipment Supply and Marketing workers, instructors of party raykoms and obkoms etc. These are precisely the circumstances which have been observed on a mass scale. Where there is no economic incentive, extra-economic pressure inevitably manifests itself.

This is why setting up a commodity market, aside from its purely economic value, also makes tremendous social and political sense, since the sphere of the democratization of socialist public relations is expanding. However a commodity market cannot function normally without solvency or widespread economic competition among manufacturers for the consumer's ruble. Competition is dynamic and variable, and is a struggle for leadership. One can certainly imagine that the efforts of Gosplan, Gossnab, foreign trade organizations, Goskomsen [State Committee on Prices] and the Ministry of Finances will suddenly result in the construction of a balanced market. When supply and demand are coordinated, there are no lines and no overstocking. What about further up the road? Can an enterprise which produces highly competitive output expand its production at rapid rates, and can it, even by reducing prices,

win in volumes? Can two or three enterprises pool their development funds and build a new plant to produce semimanufactures they feel are too costly to buy from subcontractors? The Law on Enterprises provides one or two opportunities germane to this situation. At any rate, the principle of self-financing has been proposed. But in practice, departmental monopolism in the distribution of new capital investments is still almost in full force. And according to V. I. Lenin, any monopoly leads to decay. Demolishing this artificial monopoly means setting up a second market, an **investment market**.

The state will doubtless remain the main investor in a planned economy. It is precisely the state, which supports and predominantly finances the development of those high-priority areas of production, which ensure scientific and technical breakthroughs. It finances the expansion of the production and social infrastructure, the sectors which have strategic and defense importance. But the state is not just Gosplan, but state enterprises and associations as well. They too must be given the right to participate actively in forming a capital investment policy. The money they earn not only must not be taken away "on demand," but they need to be allowed to spend it or to invest it to expand production as they see fit. And not only invest it in their own production or in joint production. Specifically, a share-holding method can be used to obtain this right. The issuance of shares for state and cooperative enterprises is a flexible and dynamic way to accumulate assets for use in solving problems related to opening up bottlenecks in a region, sector or group of mutually-related production facilities. This solves the problem of going through drawn-out arguments and reconciliations with central departments about relatively local problems, of "forcing" moneys out of the union budget etc. For example, why couldn't the problem of setting up several cultural-entertainment and tourist-oriented areas in the center of Moscow be solved on a share-holding basis? Mossovet [Moscow City Soviet of Workers' Deputies], Inturist, the Culture Fund, ZIL [Moscow Motor Vehicle Plant imeni I. A. Likachev], Serp i Molot [Sickle and Hammer], Moscow cooperative societies etc., could comprise the membership of such a joint-stock society. This would spare Gosplan and Minfin the headache of looking for the assets to finance this project, and the society's members would be materially motivated to make maximum use of the facilities thus constructed.

Banks can play a large role in ensuring a spirit of competition on the investment front. The state bank has already been broken into smaller units. The agenda calls for a network of commercial and cooperative banks to be set up. A flexible credit policy and a variety of conditions for granting loans and bringing in spare cash from enterprises and the population can act as a powerful thrust vis-a-vis bringing to light new effective areas for investing savings, and for putting them into the circulation of economic and social life. A diversity of opinions and sources of financing will make it possible to effectively set up a competitive base for selecting construction

and renovation projects, both in the national economy as well as in the social and cultural sphere.

And finally, we cannot evade the most delicate problem pertaining to bringing matters to a state of financial health—the need to form a **currency market**. Essentially, it is a matter of the competitiveness of our ruble with the currencies of other countries. The situation in this area has become strange and abnormal. We have no wish to, nor can we, manage without foreign economic ties. Developing and strengthening these ties has long been seen not only as a factor which would help to expand the Soviet economy, but also as a way to enhance world political stability. No one doubts the advantages of participating in world trade and international economic and scientific-technical cooperation. At the same time, we have isolated ourselves from the world currency system. And even though we are now beginning to feel that it is high time we removed this blot on the escutcheon of our money, we still put the solution to this problem off into some distant fog-enshrouded future. Why? My purely personal opinion—and I know many economists do not agree with it—is that we need to change over to a convertible ruble immediately. This—and not the final result, as some people suggest—is one of the conditions for perestroika to proceed successfully in our economy. If we pose and solve this problem, it will impart seriousness and resolve to the actions aimed at healing our economy and its monetary system. We can thus prove to ourselves that economic perestroika is not selfish opposition, but a real battle for the effectiveness of socialism.

The USSR needs to participate in the IMF [International Monetary Fund]. This organization was set up at the Bretton Woods Monetary Conference in 1944 with the assistance of a representative delegation from our country. The IMF develops and agrees upon a system of international currency relations and coordinates the currency policy of a number of countries. It should be mentioned that this organization is made up of 50 countries (only 49 when the fund was set up). The USA's monopolist dictates here were undermined long ago. Developing countries have more than a third of the votes and the Americans have less than one-fifth. There are a few socialist countries in the Fund: China, Hungary, Vietnam, Laos, Romania and Yugoslavia. Why must we shun this international organization? You see, we have been economically blackballed from this world currency society only by the United States and its allies. The fact is we still participate in world trade, and conduct certain currency operations. But we do so on a medieval level, without the world economic ties of flexibility necessary for modern expansion.

The usual explanation for our timidity in solving the problems associated with joining international trade and currency organizations is reduced to this: we have minimal hard currency revenues and limited export capabilities. Yes, limited. But we still export vast quantities of fuel and energy resources and other raw materials. There

is no argument that our export structure is unworthy of a highly-developed industrial power. But that is another problem. In fact, what is important about the problem we are discussing is not how hard currency is earned, but how much and what are the total earnings. And a great many countries which feel like they are full-fledged members of international currency societies have reason to envy us here. Moreover, we are not sitting, like the Plyushkins, on the "petro-dollars" we have earned, but are spending them on machine tools, equipment, consumer goods and grain. So why not finance these trade deals with rubles whose stability is backed up by the same dollars which are now spent directly? Of course, doing so would mean establishing a reasonable ruble policy. At first, this policy could be formulated within the country by setting up an interior currency market within which state and cooperative enterprises could freely take part.

Certain conditions for setting up this market have already been laid down. Enterprises producing output for export can use some of their currency earnings at their discretion. However, enterprises need to be given opportunities to purchase currency credits to be repaid by rubles earned in the internal market in accordance with a loosely established policy. Here, the "ruble-capacity" of the dollar will vary in different economic spheres, since our internal prices are seriously flawed. But flexible and strategic price adjustments will bring us, a step at a time, to a unified ruble policy. In this regard, ill thought-out "theoretical" principles aimed at "radically improving the pricing system" are already appearing, and the real economic reference points for regulating these prices are being kept under tight state control.

Perhaps the fantastic character of this prospect takes some people's breath away. But you see, once upon a time quite recently the very possibility of generally being able to discuss literally everything took the breath away from everyone concerned with the above questions. And what was the upshot of this? The creation of a socialist "reality" and a "maturity" which not even the fantasists had dreamed of. And now the entire country has to rebuild castles which have turned out to be in the air, and has to strike the Potemkin villages.

COPYRIGHT: Izdatelstvo "Pravda," "Ogonek," 1988.
12659

Roundtable on Gospriyemka's Present Role, Future Direction

*18200013a Moscow STANDARTY I KACHESTVO in
Russian No 8, Aug 88 pp 21-29*

[Article in the form of a round-table discussion conducted by STANDARTY I KACHESTVO editorial board members, Boris Petrovich Chumakov, Vyacheslav Ivanovich Sidorenko and others under the "Gospriyemka [State Acceptance] and State Supervision" rubric: "Problems of Improving and Expanding Gospriyemka. Gospriyemka: Working Experience, and Ways for Its Further Development. A STANDARTY I KACHESTVO Round-Table Discussion" (Recorded and prepared for publication by L. N. Alperin, special STANDARTY I KACHESTVO correspondent)]

[Text] EDITORIAL COMMENT: On 2 June of this year, the Scientific and Technical Council, the USSR Gosstandart Main Administration for State Acceptance of Output and the editorial board of the magazine STANDARTY I KACHESTVO organized a discussion of the prospects for and the further expansion of gospriemka as part of a radical reform of the operation of our economy.

The following persons were invited to the STANDARTY I KACHESTVO magazine's round-table:

Boris Petrovich Chumakov, first deputy chief of the USSR Gosstandart Main Gospriyemka Administration;

Vyacheslav Ivanovich Sidorenko, gospriyemka director of the Transmash PO [Ministry of Transportation Machinery Manufacture Production Association] and Eduard Fedorovich Kosobutskiy, the association's deputy general director in charge of production;

Gennadiy Leonovich Davydov, gospriyemka director at the Krasnyy Proletariy Machine Tool-Building Plant in Moscow and Sergey Nikolayevich Sergeyev, the plant's deputy director in charge of quality;

Anatoliy Vasilyevich Krylov, gospriyemka director of the Kriogenmash NPO [Cryogenics Machinery Scientific Production Association] and Nikolay Vasilyevich Filin, general designer of cryogenic equipment and first deputy for scientific operations to the general director of the association;

Yevgeniy Tikhonovich Tereshchenko, gospriyemka director at the Chekhov Power Engineering Machinery-Building Plant;

Boris Nikolayevich Starostin, gospriyemka director of the Zavod imeni Ukhtomskiy Production Association in Lyubertsy;

Oleg Ivanovich Belenok, deputy gospriyemka director of the Temp Production Association and Aleksey Dmitriyevich Zhukov, acting chief engineer of the association;

The round-table was headed by:

Vsevolod Vasilyevich Tkachenko, deputy chairman of the USSR Gosstandart Scientific and Technical Council and editor-in-chief of the magazine STANDARTY I KACHESTVO.

The following is a condensed version of the stenographic text of the round-table discussion.

The editorial board hopes that the magazine's readers will take an active part in discussing ways to further develop gospriyemka.

Opening the discussion, the moderator specifically mentioned that the extreme urgency of the topic being discussed stems from the need to put into practice the guidelines for radically restructuring our country's standardizing efforts as a guide to action.

One of these guidelines is the continued improvement of the working forms and methods used by gospriemka organs. This is why the Main Administration for State Acceptance of Output and the Administration of State Acceptance of Social Facilities have been charged with looking into the work of gospriemka organs in the industrial sectors and with working up suggestions, by 1 October 1988, for further improving the forms and methods these sectors use in their work.

This "round table" is the first link in a long chain of planned measures aimed at providing successful solutions to the task which has been set. Right now, the most important order of business is to find and analyze the basic problems associated with further developing and improving gospriemka, and to involve a large circle of industrial workers in the search for the best solutions to these problems.

The moderator posed the following three basic questions for discussion among the round table participants:

1. What have been the primary results and the most significant lessons learned as a result of the gospriemka work done in your enterprise?
2. What, from your standpoint, are the goals and tasks related to further developing gospriemka of output?
3. What do you think should be done to substantially expand gospriemka's roll in improving output quality?

V. I. Sidorenko: The primary result of gospriemka's work in the Transmash PO is that items earmarked for export are now part of our overall production flow. Bringing this about took solid work finding and eliminating bottlenecks in our production methods and setting up production.

Nevertheless, our personal experience, as well as that of our colleagues in other enterprises, has shown that if we are to do what is required to raise the organizational and technical level of production, we need to considerably intensify the amount of attention we give to all the remaining stages of the output's life cycle. And the main thing here is the work done with the suppliers and customers.

Life has shown that no matter how strict the incoming control of materials and accessory parts, it is impossible to manage without working with each supplier individually. This work takes on a variety of forms, but if its efficacy and effectiveness is to be improved it is crucially important that we deal with the following three problems:

first, spread the influence gospriemka has in the association's leading enterprise to all the association's enterprises, no matter in which region they are located;

second, strengthen gospriemka's interaction with Gosstandart's territorial organs, thus ensuring that these organs react quickly and adequately to gospriemka's requests (especially those backed up by corresponding official acts and other documents), so as to improve its influence on suppliers;

third, give gospriemka the right to sign complaint acts. At present, a gospriemka conclusion is only seen as additional proof of a case of poor-quality delivery.

As for our customers, we need to realize that few of us, as it turns out, are protecting their interests. We need to maintain permanent contacts with them, to come to a point of mutual understanding and interaction while solving common problems. Otherwise, we will not achieve the required result.

E. F. Kosobutskiy: To what Vycheslav Ivanovich has said, I can add that stabilizing production is the extremely important result of the work done by gospriemka. Right now, if we know how many parts have been put into production, then we know the number of instruments which will be assembled and accepted as well. Prior to now this could not have been so, since the caliber of production was extremely poor.

I understood all the suggestions made by our gospriemka people, and I support them. In addition, I feel that it is necessary to expand the sphere of action and bolster gospriemka's influence on the people who develop new and upgraded products. In particular, we need to entrust gospriemka with monitoring design and manufacturing documentation.

I have to say that in my time I have been a chief process engineer and have considered myself as a legislator in this field. When the work of the process engineering service had to be reconciled with someone, I took active exception to this, feeling that all this hampered the work and negatively affected the final results of the enterprise's activities.

Now that I have become acquainted with gospriemka's work, I have changed my opinion. I now understand that for the good of the business overall and to ensure excellence in our final results, all of the technical specifications needed to be agreed upon with gospriemka. And this has, first of all, to do with the technical specifications for new products. Gospriemka employees are not our enemies, but our comrades-in-arms. They have high engineering skills and have had a tremendous amount of experience.

V. P. Chumakov: I am glad to have heard this proposal from you—a representative of enterprise management. For many production workers, spreading the effect of gospriyemka to the stages at which technical specifications are developed means introducing another means of control.

E. F. Kosobutskiy: Gospriyemka can and must give proper direction to the working up of the specifications. This will greatly accelerate the preparation and "tuning up" of production and will take care of many of the problems which crop up whenever new products are being developed, but which require a great deal of time, material resources and manpower resources to solve. And I mean a great deal more than when polishing up the technical specifications. We understand this, because we also believe that extending the influence of gospriemka to the development stages of technical specifications is not only useful, but necessary. This will give us a more skilled and interested eye, and will be another partial but very necessary test. In the final analysis this is all to the enterprise's benefit, not to its detriment. Moreover, we are certain that when the process of reconciling the technical specifications with gospriemka is worked out in requisite fashion, all unwarranted delays can be eradicated.

B. P. Chumakov: The problem of gospriyemka's interaction with the developers has another, no less crucial aspect. It has to do with realizing the enterprise's capabilities. This is why I want your opinion on this as a deputy general director in charge of production.

The point is that developers quite often devise products which the enterprise, for a number of objective reasons, is incapable of manufacturing: it lacks the needed materials and components or equipment or its personnel are insufficiently skilled etc. In situations such as these, the developers are forced to compromise, which often keeps the new products not only from being new, but keeps them from being of sufficient quality as well.

So what role, in your opinion, can gospriemka play here?

E. F. Kosobutskiy: We are doing everything possible to rule out even the need for such compromises. And in so doing, we are not only limiting the designers, but are requiring that they follow only the most progressive guidelines. As for the manufacturing engineers, they have been charged with bringing the designers' conceptions to fruition. This applies to suppliers as well.

B. N. Starostin: A new design always pushes manufacturing to new limits. If the design does not call for a new material, a new element or a new principle, then we will never produce a new product, nor will our manufacturing methods or the organization of our production ever reach a higher level. If we orient ourselves only towards what exists today, then we will never have a tomorrow.

And these are not just pretty words. General and chief designers now have the right to order new materials and to, so to speak, "perplex" the ministries and departments to develop and produce everything needed to manufacture new products which surpass the world level.

E. F. Kosobutskiy: Nevertheless, designers, no matter how many rights they have, find it exceedingly difficult to achieve this on their own, without the assistance of the manufacturing engineers and production workers. **Gospriemka is much more of a go-getter than any plant service. And this ability needs to be used to ensure that developers' conceptions for new products are realized.**

G. L. Davydov: One of the extremely important lessons we have brought over from our accumulated work experience is that the work of gospriemka employees can be sufficiently effective only when they have been given special training which, on the average, takes about a year. Moreover, I am convinced that it is the wrong tack to make gospriemka personnel up only from employees of this plant. The point is that a gospriemka worker's previously established relations with the enterprise collective will usually have a negative effect on his work.

Our gospriemka group has been in the process of coming together and developing for about a year. Only one-fourth of its members were previously employed at the plant. Right now our collective is highly capable of functioning, robust and has no internal problems.

Our work is based on programs of measures for solving specific problems and tasks related to improving production effectiveness and output quality. These programs were developed jointly with the plant. They consist both of complicated and long-term jobs, including scientific research work, and simple jobs whose execution involves no special difficulty and does not require considerable outlays of time, labor or material resources. These programs can be extremely diverse, for example, and can pertain to improving the outward appearance or reducing the noise level of a machine tool. Developing and implementing these programs concentrates the efforts of gospriemka and the plant collective on the major directions of the work of organizational support and technical supply for raising the technical level and output quality, and will carry every project which has been begun through to completion.

As for the suggestions made here, I support them. Actually, the interaction of gospriyemka groups and USSR Gosstandart's territorial organs needs to be greatly improved. It is extremely important that we ensure that the gospriemka group of a leading enterprise is able to have the necessary influence on all the enterprises in the association.

Nevertheless, I feel that the most complicated and acute problem has to do with mutual relations between gospriyemka and the OTK [department of technical control]. I believe that **we need to abolish the OTK's function as an intermediate link between gospriyemka and the enterprise.**

B. N. Chumakov: In your opinion, what needs to be done here?

G. L. Davydov: The OTK's functions should be handed over to gospriyemka and a unified service set up.

V. I. Sidorenko: Under no circumstance can this be done. The technical control service performs functions which are an integral part of the manufacturing process.

G. L. Davydov: We are not against participating in manufacturing. Doing so would have more of us in the OTK as a whole.

B. N. Starostin: This is incorrect, and not only from the standpoint of available personnel. Gospriyemka must not be turned into merely a supervisory organ. It has other tasks to perform and a different ideology. This does not altogether mean that it should neglect technical control. But in addition to accepting finished output and supervising the work of the OTK, gospriyemka should be involved with the metrological support of production, as well as with manufacturing and designing products; in other words, with everything the future and the ability improve the quality of manufactured products to the world level depends on. If gospriyemka is reduced to monitoring manufacturing methods and performing the OTK's tasks, then there will be neither an OTK or a gospriyemka.

G. L. Davydov: All this is correct, and not only do I agree with you, but I am trying to find a practical solution to all the problems facing gospriyemka. However, neither can you deny that the OTK has become a buffer between gospriyemka and the enterprise. This benefits neither the gospriyemka, the OTK or the enterprise. This is the way things stand. The question is—how do we change them?

V. I. Sidorenko: The way out of this situation is well known and widely used: it consists in granting the best workers, brigades, sections and even shops which have succeeded in stably producing high-quality output the right to turn their output over, not to OTK controllers, but directly to gospriyemka.

S. N. Sergeyev: If the role of the OTK under gospriyemka had not come up in the discussion, I would have brought it up anyway.

No matter what they say, gospriyemka duplicates and undermines the OTK to a large extent. This is already bad, and will become simply intolerable as cost-accounting spreads. The work by warrant of the OTK is not the way out. This is why we must find a solution to the problem.

This is going to seem strange to a lot of people, but I—a deputy director in charge of quality and chief of the OTK—support Gennadiy Leonovich's view. However, I

feel that abolishing the OTK and transferring its functions to gospriyemka is only one of the possible alternatives for solving the problem.

If we're talking about this alternative, then I do not understand how giving gospriyemka the added functions of carrying out technical control in the enterprise will not keep it from performing all its other functions. **In our plant, gospriyemka is taking more and more control over output quality. Why, in addition to this, would the workers who execute technical control of all stages of production not be subordinated to it as well?** There is, in fact, nothing more to add—it's all there. We need only centralize it, reorganize it and adjust it. I am sure that this will be to the benefit of both technical control as well as gospriyemka.

Perhaps, as I said, there are other alternatives. For example, **gospriyemka can be freed from monitoring the manufacturing process and it can be co-oriented on everything pertaining to improving the technical level of output. In doing this, it would obviously be a good idea to concentrate its attention on all types of product tests and on collecting and analyzing operational information pertinent to the quality of the output produced.** This will provide us with extremely valuable information and allow us to subject this information to a skilled analysis. With the results of this analysis at our disposal we can purposefully influence the design of our products and the methods used to manufacture them.

B. P. Chumakov: I feel it is necessary to support your point of view regarding the fact that **the objective information obtained from consumers can and must be used to draw predictive conclusions and to plan special-purpose operations for improving output quality and reliability.** However, **all this can and must be done without any excesses whatsoever on the part of the OTK.**

Nor can there be any serious grounds, regarding your first alternative, for merging the OTK with gospriyemka or, regarding your second alternative—as I understood it—for completely removing the OTK from under gospriyemka's influence. The OTK is an organic part of the enterprise, and all the enterprise's work pertinent to providing assigned output quality, which includes performing technical control is, for gospriyemka, an object of control and influence. It is entirely a matter of how gospriyemka performs this control, on what it is oriented, and on what it concentrates its primary attention and its efforts. The OTK's work is duplicated and undermined, as a rule, when gospriyemka neglects all its many other obligations. This is, of course, not to be allowed, and we correct gospriyemka groups which do so. Experience shows that this is how we can provide a sufficiently radical solution to the problem you brought up.

A. V. Krylov: No matter how strange this sounds, our gospriyemka group's main problems stem from the fact that the Kriogenmash NPO [Cryogenics Machinery Scientific Production Association] manufactures output

which has traditionally been equal to the highest world level. Over a year has passed, and we have no results to show for our work. We have no complaints, nor were there any prior to now. Losses from defective workmanship have been negligible and have remained so. But we are the people who work, and do so purposefully and intensively, to find and eradicate numerous flaws at all stages of production. Where and how is the result of this work supposed to manifest itself? At the customer's, obviously. But this can be determined only by going over years of work done by the cryogenic plants. This is why we devised and are now conducting this particular type of experiment.

The point is that in December of last year, our association started manufacturing two AK-6 installations for a pipe-manufacturing plant now being built. We put these under special control and want to attain this level of quality for all components. This would not only eliminate the need to inspect them prior to installation, but would considerably reduce outlays for all types of resources, as well as the time needed for installation and start-up and adjustment work. Having concluded a contract with Soyuzkislородmontazh [All-Union State Trust for the Installation of Oxygen Plants and Units], we were obliged to deliver them only high-quality and complete sets of equipment within strictly set deadlines, and they are obliged to shorten the time periods (by 2-2.5 months) and to reduce the cost of the installation and start-up and adjustment work.

If this experiment succeeds, and we have every reason to believe it will, then obviously **we must bring up the question of gospriyemka participating in installation and start-up and adjustment work.**

B. P. Chumakov: Doesn't it seem to you that by doing this you are trying to undermine the work done by the enterprise? Isn't the enterprise really responsible for the quality of its products and for the time taken to install and adjust them?

A. V. Krylov: Certainly the enterprise is responsible for all this. But it is important to gospriyemka as well. The point is, in plant production conditions, these installations are developed in parts. Of course, we control each part, just as we are supposed to. But this is only a part and not the entire installation. I myself have to know what the overall level of quality is going to be for the installation and how each part will behave in the plant.

This is necessary for appropriately organizing gospriyemka's work in the shops and sections. For not only do our association's chief engineers participate directly in the start-up and adjustment work, but so do our designers and production personnel. They don't tell me which of their flaws they, along with the client organization's employees, are amicably eradicating.

B. P. Chumakov: No doubt you are right when you say that installation and start-up and adjustment are extremely valuable sources of information for gospriyemka. And the presence of a gospriyemka representative at the project doubtless improves the trustworthiness and objectivity of the information on any defects which are found. However, in solving this problem, we must not forget that these are not just gospriyemka's job but the enterprise's as well. The enterprise is in fact the legal entity responsible to the client for the quality of its output. Gospriyemka is only the guarantor of the quality of the output delivered to the client.

A. V. Krylov: For us to become such a guarantor not in words but in fact, we feel that we need:

first—to expand gospriyemka's rights according to the gosnadzor [state supervision] policy, and specifically to regulate the mutual relations of the enterprise management with the gospriyemka director as chief state inspector;

second—to completely eliminate gospriyemka's dependence on the enterprise, as well as on the party committee and the trade union committee;

third—to decisively put a stop to rumors that gospriyemka is only temporary, which hinder our efforts to replenish and consolidate the state controllers' collective.

N. V. Filin: By themselves, Anatoliya Vasilyevich's suggestions prove that no mutual relations have been established between gospriyemka and the administration in our association. And this is not because we have not had and do not have problems with output quality. These problems have always been around, and always will be. But Boris Petrovich is right: it is precisely the association and, first of all the general designer who are fully and totally responsible for the technical level and quality of their output, both to the customers and to the state. This is why **I do not believe Eduard Fedorovich's suggestion to extend the sphere of gospriyemka's influence to the product development stages is correct, if this influence is to consist only of having control over the technical specifications.**

At the same time, it is necessary and possible for gospriyemka to interact with the product developers. Our association's many years of experience attest to the fact that **gospriyemka will be able to exert an extremely powerful influence on output quality at all stages of its life cycle, with tremendous benefit for the enterprise, the customer and the state, if it participates in development and takes upon itself control of the implementation of the "Quality" programs.**

I should say that as a general designer, I am interested in knowing how an independent and influential organization such as gospriyemka has managed to implement all the measures called for in the "Quality" programs so rigorously and systematically.

Ye. T. Tereshchenko: I would like to return to the discussion of gospriyemka's mutual relations with the OTK. Our plant's experience indicates that, in order to solve this problem, it has been extremely fruitful to divide the entire complex of problems being solved by gospriyemka and the OTK into the following three levels of documents containing the requirements on output quality: the first level is the design and manufacturing documentation; the second level is specifications and other normative and technical documents; the third level is state standards. We believe that gospriyemka's primary task is to see that the first level documents fully reflect all the output quality requirements contained in the second- and third-level documents. The primary task of the OTK is to see that the manufactured output fully meets all the requirements in the design and manufacturing documents. Here, gospriyemka has been charged with controlling and guiding the activities of the technical control service.

Practice has shown that this approach can be fully understood by the employees not only of the OTK, but of all the plant's engineering services.

As for further expanding gospriemka, we its primary long-term job is to continue improving the quality of the plant's output up to the world level. This first of all necessitates raising the requirements of the corresponding state standards up to the world level.

Is such a task within the powers of gospriyemka? Right this minute, I believe the answer to this question can only be negative. And it's not because gospriyemka does not have rights or is weak, but because, as a rule, it does not know what the world level, which it is supposed to attain, is. Unfortunately we do not know as much as we ought about the foreign analogues or the methods by which they are manufactured, and a great deal more without which it is practically impossible to develop competitive output. **This is why without sufficiently rapid and radical solutions to the problem of information about world market conditions, we will hardly succeed in solving the problem facing us.**

And there is another question which has to do with the success of gospriyemka's work. Vyacheslav Ivanovich has already mentioned the need to come to a mutual understanding with our customers. It seems to me that mutual understanding is not enough. The point is that I have often travelled out to the power plants where we send our equipment, and every trip has convinced me that this equipment is being cared for and operated extremely poorly. This is why every visit to a power plant resulted in the drawing up of an official act concerning the many flaws we discovered. However, these official acts usually make no impression on power plant directors. It appears to me that there is but a single way out of this clearly abnormal situation: **gospriyemka directors need to be granted the right to penalize enterprise managers for violating regulations on the care and operation of equipment delivered to them. I feel that if the consumer is**

indifferent, then gospriyemka should watch over and defend the state's interests, and should not allow essentially criminal squandering of the material and manpower resources which went into giving the delivered products the assigned level of quality.

B. N. Starostin: Yevgeniy Tikhonovich is absolutely correct: bringing manufactured products to the point of fully meeting the requirements of the prevailing documents of all three levels is important and necessary, but no longer sufficient. **Here, the first order of business for gospriyemka is to raise the products' technical level. The solution to this problem is what will determine the basic content of the second stage of its development.**

Here is an example to back up this statement.

Our plant was charged with initiating production of a new silage harvester which was developed through a licensing agreement purchased abroad. Last year the foreign developers themselves tested the combine in Soviet fields and couldn't show us a single one of its touted features, including dependability. Nevertheless, our designers set about translating the license we paid for into something tangible. While participating in accepting the experimental lot of these combines, we discovered 29 serious design flaws which, had they not been eliminated, would have made it impossible for the combine to operate.

When we began looking seriously into this combine, it became clear that it was impossible to put together a good machine from this design. This is why people ask what purpose gospriyemka can serve if it cannot influence decisions if elements of these decisions cannot be changed for the better after the decisions have been made?

B. P. Chumakov: But our guiding documents state that you have the right to question whether such a machine should not be kept out of series production.

B. N. Starostin: And that is precisely what I do question. But work on this notoriously unsuitable machine is continuing: prototypes are being manufactured, tested and completed. The money already spent and the time already lost are being followed by more and more being thrown after them.

This is why I am in favor of involving gospriemka with the technical level and quality of output, beginning with an examination of the technical program for new product development. But, as Yevgeniy Tikhonovich so justly pointed out, doing this necessitates finding an immediate solution to the problem of database organization and support, the problem of developers and the problem of gospriyemka. As for gospriemka, it seems to me that the appropriate USSR Gosstandart institutes should help. For example, VNIINMASH [All-Union Scientific Research Institute for Standardization in Machine Building], VNIKI [All-Union Scientific Research Institute of

Technical Information, Classification, and Coding (of the State Committee of Standards, Measures, and Measuring Instruments, USSR)] and VIFS [All-Union Information Fund of Standards and Technical Specifications] should provide us with information which would enable us to assess the merits and flaws of output manufactured by our enterprises, to be aware of the basic trends in its development and improvements in leading foreign countries, and to find guidance with regard to which ways and methods we need to use to make our products competitive. Then we will be able to strive to outstrip the already-achieved level of requirements for new products in the technical proposals by 5-7 years, and to outstrip them by no less than 3-4 years when we put them into production.

As for the OTK, I feel that **gospriyemka should train and put controllers to work in the manufacturing processes as needed.**

A. D. Zhukov: It should be mentioned that we evaluated all gospriyemka's efforts and power as of last January when its activities resulted in the plan being fulfilled by only 10 percent. In fact, a new method for manufacturing a new television had to be devised, which involved active gospriyemka participation. The production facility was being renovated simultaneously with the retooling of the enterprise. All this ensured the prescribed quality for the television sets, and made it possible to stably fulfill the plan for their production as well.

Nevertheless, we understand that up to now, we have been dealing only with the tip of the iceberg: ahead, there is a huge complex of problems which, if not solved, will prevent us from bringing the quality of our output up to the world level. There is no doubt that gospriyemka can and must accelerate and activate solutions to these problems. But to do so, **it must unfailingly extend its sphere of influence to include the developmental stages of new and upgraded products.**

The fact that responsibility for the technical level and quality of our output has been laid on the general and chief designers has already been mentioned here. However, that's the way life is. The fact is, all of us have been given a great deal of responsibility for a great many things. Thus, the enterprise director, the chief engineer, the OTK chief and many others are responsible for output quality. However, under the prevailing economic mechanism, in the overwhelming majority of situations, all these officials make decisions which as a rule do not benefit output quality. The same can be said about general and chief designers as well: they are responsible not only for developing but for initiating production of new products, and this entails the need for compromises which frequently substantially lower product quality as compared to the design conception and the initial version.

This is why I feel it is **crucially important that gospriyemka exert the requisite influence on new product developers as soon as possible.**

B. P. Chumakov: And how do you respond to those who are opposed to this suggestion, and who feel that many types of control ought to be abolished and no new ones introduced?

A. D. Zhukov: As far as I can tell, the people sitting in at this "round-table" are not adherents of administration-by-command management tactics, but practical industrial workers who understand that without implementing the required control functions management, and this includes economic management, would be totally ineffective.

B. P. Chumakov: Actually, control is an inalienable function of management. All this is correct and inarguable in principle. But what about in practice? Let us assume that your enterprise's gospriyemka is given the right to control the development of new and upgraded products. How will it go about this? How does it determine who is right in a dispute between, say, the chief designer and gospriyemka on whether the quality of a developed product meets world standards? In fact, it has already been mentioned here that our country does not yet have the necessary data banks containing the features of the best foreign product-analogues, nor do we have a generally-recognized method for defining the world level and the degree to which it has been realized in a specific, newly-developed product.

A. D. Zhukov: Not all your questions can be answered if the director is seen as the enemy, as a heartless formalist whose primary objective is to expose and humiliate the chief designer. In fact, the fact that **gospriyemka can and must be the ally of the chief designer, as well as his helper and comrade-in-arms in the common struggle to raise the technical level and improve the quality of output not only on paper, but in production as well** has already been discussed here. N. V. Filin: It is precisely the role of ally and aide to the chief and general designer which gospriyemka is called to play. Together they must strive to fully realize the conceptions of those who develop new products.

E. F. Kosobutskiy: Right now, when the mechanism for economic management is still unformed, **the new equipment developer needs an ally to realize his conceptions, and only gospriyemka can be this ally, as it knows what condition production is in and can have an extremely effective influence on having the management make needed improvements.**

B. P. Chumakov: Unfortunately, there are far from a multitude of facts supporting the practical possibility of this solving the problem. The point is that more often than not, all sorts of substitutions—usually materials and components with reduced technical features—are "forced" through gospriyemka. Both production workers and chief designers have been involved in this, and they go about it in a united front. These are the facts. Their actions suggest that there is still a no-holds-barred struggle going on between the chief designer and gospriyemka.

For example, the chief designer is trying to get gospriemka to authorize a bearing replacement. Neither the designer nor gospriemka has the information needed to make a well-grounded decision, nor is there any reason to believe that this replacement will not lower the quality of the product. So the upshot is that the stronger, the more obstinate, and the more influential of the two will prevail.

It is for this reason that **in extending gospriemka's sphere of influence to controlling the working up of technical specifications, it is crucially important that its influence on all types of product trials be bolstered as well.** The fact is, trials are the test of the reality of everything designers, manufacturing engineers and industrial workers have striven for. Trial results are the only thing which make it clear that all their efforts have been made for the product, and whether the client and the customer will be satisfied or whether everything will have to be redone and whether the outlays of time, resources and money will last.

O. I. Belenok: In our association, not only does the development and manufacture of the television set matter to gospriemka, but also whether the individual customer received it favorably or not.

The degree of success of our work can be judged by the fact that complaints have diminished by one-third. Nevertheless, the problem of extending the trouble-free period of the televisions is far from being solved. We are guided in our practical work by analyzing data on the breakdowns which show up during the approval tests, during pre-sale and warranty maintenance. In this connection, we are most concerned about the situation which has come about recently in the trade sector.

Our association has a contract with the trade sector, according to which each store must operate each set for four hours, must check it out and readjust it etc., prior to its being sold. However, all this is still done only on paper. In May, I visited the Executive Committee of the Moscow City Soviet of Workers' Deputies trade administration, where they told me officially that there was not a single store in the city of Moscow which could carry out the pre-sale preparation of televisions as provided for in the agreement.

The situation is further complicated by the fact that gospriemka has no means of any sort to put pressure on the stores or the corresponding trade agencies. **In order to see that they do not just listen to us politely at best, but that they meet their obligations in the required fashion, it seems to me that gospriemka needs to be given state trade inspection privileges.**

B. P. Chumakov: And wherein, properly, does the problem lie? Are the stores really not interested in carrying out mandatory pre-sale television preparation, or in selling them?

O. I. Belenok: They are interested, but not enough to have the necessary specialists on their staffs or to create all the conditions necessary for them to carry out pre-sale checks and preparation of the televisions.

B. P. Chumakov: As far as I know, the Mintorg [Ministry of Trade] inspectorate should be abolished and its functions transferred to USSR Gosstandart's state inspectorate. This is why the problem you brought up will probably be solved correctly.

In summing up the results of the "round-table", the moderator particularly emphasized that the discussion is to be the first sign, i.e., it is meant to initiate a widespread discussion in the pages of STANDARTY I KACHESTVO of a broad range of problems related to turning gospriemka into a powerful means for radically bringing the quality of domestic output up to the world standard. **In so doing, it has expressed the desire that the following questions, brought up during the round-table discussion, be discussed as well:**

1. At which stages of product development (TZ [technical task], preliminary design, detail design, prototype) should production forms and records be coordinated with gospriemka?
2. Should gospriemka's activities extend to a product's operational stage?
3. What is the best and most practical way to expand gospriemka's activities to the pre- and post-production stage of a product's life cycle?

COPYRIGHT: Izdatelstvo standartov

Insufficient Experience With Market Claimed
18200216a Moscow EKONOMICHESKIYE NAUKI in Russian No 5, May 88 (signed to press 12 Apr 88) pp 58-64

[Article by Nikolay Dmitriyevich Kolesov, doctor of economic sciences, head of the Department for Political Economy of the Economic Faculty at Leningrad State University: "Immanent or Alien?"]

[Text] Problems concerning the nature and role of commodity-money relationships under socialism are raised very sharply in D. Smoldyrev's article. Although, apparently, there are some "excesses" in the criticism of existing views of this problem, on the whole, the article correctly, in our opinion, interprets existing stereotypes and dogmas and approaches the solution of this problem in a new way. Traditionally, commodity-money relationships under socialism were approached from negative positions ("what negative things do they have and how to get rid of them more rapidly?"). Their wide utilization and development were considered incompatible with the transition to communism. But "what progressive role do commodity-money relationships play under socialism?"—the question was not even raised in this way.

These relationships were considered the survival of capitalism and a foreign body under socialism and the more quickly society gets rid of it, allegedly, the better. In fact, the noted approach denies the objective need for commodity-money relationships and asserts that, apparently, society can give them up at its wish.

The party's conclusion on the underestimate of commodity-money relationships and of the law of value during the years of stagnation and deceleration is of great importance for the economic theory and practice of socialism, because it shows the direction in which we should proceed. In this connection it is necessary to reexamine certain set principles and existing dogmas concerning many problems of commodity-money relationships—their content and role in socialist society and their interconnections with the planned nature and centralized management of the national economy, with cost accounting, with economic incentives, and so forth.

The negative attitude toward commodity-money relationships was manifested in the fact that the existence of many negative phenomena under socialism—bribery, shortage, speculation, and imbalance, spontaneity, and even delay in rates of national economic development—was connected with them. It followed from this that the maximum possible limitation of commodity-money relationships should lead to a reduction and disappearance of these negative phenomena. Conversely, the development of commodity-money relationships and their more extensive utilization allegedly intensify these negative phenomena.

However, is it possible to consider speculation and bribery the consequence of development of commodity-money relationships? As is well known, speculation develops owing to the shortage of goods: The more acute the shortage, the bigger the opportunities for it. However, the shortage is due to the insufficient level of development connected with the production of certain goods and their scarcity and incorrect distribution (in some regions there is an acute need for them and in others, a big surplus and overstocking). In the final analysis, the cause of speculation lies in the noncorrespondence of the population's effective demand with the commodity mass on a countrywide scale or in individual regions. The shortage and scarcity of goods are also created by the imperfection of prices, weak stimulation of the production of goods, incorrect planning of the movement of commodity and monetary masses, and poor organization of trade. Consequently, the cause of speculation should be seen not in an extensive utilization of commodity-money relationships, but, conversely, in their insufficient development and poor utilization. Under developed commodity-money relationships speculation, as a rule, disappears. It is precisely the same with bribery. Not commodity-money relationships are its cause. From Russian classical literature it is known that bribes can be taken not only in goods or money, but also in "borzoy puppies." In our opinion, it is illegitimate to openly connect commodity-money relationships with

the negative processes under socialism, which were manifested in a particularly sharp manner during the period of stagnation. The cause of negative phenomena is rooted not in the commodity relationships themselves, but in the forms of their utilization. These relationships can be considered a tool of management, which can be applied differently. For example, a knife in the hands of a skillful cook is an implement of labor for food preparation. However, the same knife in the hands of a bandit is an implement of murder. The same article serves for directly opposite goals. It is precisely the same with commodity-money relationships. A speculator can utilize them for his own enrichment and a production collective can utilize them for increasing the producer's material interest in the results of his labor. The task boils down to limiting or nullifying the negative consequences of their utilization and, conversely, strengthening their positive and progressive role.

A poorly organized planned activity also gives rise to negative tendencies. However, it does not follow from this that planning should be given up. An incorrectly organized planned economy can do bigger damage than a spontaneously developing economy, because the latter has certain levers of self-regulation, whereas a bureaucratically centralized economy cannot regulate itself.

In the history of our country two attempts at a more extensive utilization of commodity-money relationships, which played a positive role in the development of the national economy, can be mentioned. First, it is a matter of the development and more extensive utilization, in connection with the transition to the New Economic Policy, of commodity-money relationships, which was a decisive factor in the restoration of the destroyed national economy. The development of commodity-money relationships created strong economic incentives in the development of productive forces and in the implementation of the policy of socialist industrialization. It is to be regretted that from the 1930's administrative methods of management began to displace economic methods, which weakened incentives for production development. The second attempt to change over to a more extensive utilization of commodity-money relationships is connected with the economic reform of 1965. It made it possible to raise the rates of growth of production, labor productivity, and national income. However, the reform did not affect the bulk of enterprises and sectors. Strong-willed-command methods of management, which were almost forced out, for a number of reasons again prevailed over economic methods.

We never had a period, which can be called a renaissance of commodity-money relationships. Almost throughout the entire history of real socialism they were so suppressed by the centralized command system that they not only could not clearly manifest their progressive role, but even show their notorious negative aspects. Therefore, it is unfair to ascribe to them what they did not even realize.

D. Smoldyrev is right when he says that belittling the role of commodity-money relationships under socialism did tremendous damage to socialist society. This disparagement delayed the introduction of full cost accounting and self-financing for several decades, contributed to the displacement of economic methods of national economic management and to their replacement with strong-willed-administrative ones, weakened economic incentives for production development, and caused distortions and deformations in a number of important spheres of economic life.

In an evaluation of such an important phenomenon as commodity-money relationships we cannot fail to take into consideration the extreme historical conditions of the building of socialism in our country: the civil war and foreign intervention, the Great Patriotic War, the need to carry out industrialization in a short period, and so forth. These extraordinary circumstances to some extent explain the appearance and flourishing of strong-willed-command methods of management. At present, of course, it is difficult to determine what advantage society could have obtained from a more extensive utilization of commodity-money relationships.

A rigid centralized economy, which strongly limits the utilization of commodity-money relationships, is necessary under conditions when, for the sake of attaining immediate political or military goals, a direct distribution of material, financial, and labor resources is required. The policy of "war communism" was such a forcedly necessary policy. It made it possible to mobilize and allocate meager resources for the attainment of a military victory over the enemies of the new social system. The need for a high level of centralization for a direct distribution of resources and for subjecting them to the realization of the slogan "Everything for Victory Over the Enemy!" also arose during the years of the Great Patriotic War. Thus, from the first days of the war the entire profit of enterprises was withdrawn into the state budget. We will repeat, such policy was necessary and historically justified, but it is connected with violations of economic principles and economic laws of socialism. For example, violating distribution according to labor and exchange on the basis of equivalence, it cannot create long-term and efficiently operating internal incentives for economic development. With the transition to normal conditions of society's development it should have been abolished. Unfortunately, however, the forms and methods of national economic management applied during the years of the Great Patriotic War and immediately after the victory were eliminated extremely slowly. In any case the negative attitude toward the commodity-money mechanism persisted.

Is socialist production commodity production according to its type—this is one of the fundamental questions of the debate. Economists answering this question negatively arrive at the conclusion that the commodity economy antagonistically contradicts socialism and that the

difference between capitalism and socialism is the following: Commodity-money relationships are inherent in the former and not inherent in the latter. For example, A. Lyubinin considers socialist production not commodity production, in connection with which many questions, primarily the following, arise: From where are goods, money, and so forth taken if there is no commodity production? Does the "stork bring" them? The idea, according to which commodity-money relationships exist not in their own, but in a foreign, medium alien to them, is the chief thing in such arguments.

Of course, the type of socialist production should not be mixed with the forms of functioning of the economy under concrete historical conditions. However, nor should they be broken and opposed. The type of production is manifested in forms of management and forms of management uncover the type of production. Or it is necessary to admit that the form of management is selected arbitrarily and does not reflect the type of production. A. Lyubinin adopts precisely the latter position, "graciously" permitting the "existence of commodity-money relationships in the new economic system, which in its essence is a noncommodity system."¹ However, are they not in this case a foreign body, the "foundling" of capitalism to socialism? And how can forms of management (with the utilization of commodity-money relationships) not corresponding to the type of production be applied? Moreover, is it worth utilizing (and, especially, developing) commodity-money relationships if they do not correspond to the type of production itself? And no matter how A. Lyubinin assures us that it is necessary to utilize commodity-money relationships under socialism, according to his interpretation, they remain "someone else's child."

A. Lyubinin's article manifests an obvious underestimate of the role of commodity-money relationships under socialism and reflects a point of view of commodity-money relationships as a "necessary evil," which is deeply rooted in economic literature. They give something. At the same time, they give society more trouble. The guideline toward the development and a more extensive utilization of commodity-money relationships allegedly contradicts the directly public nature of socialist production. The underestimate of commodity-money relationships is manifested in the fact that too many spheres, in which allegedly there are no commodity-money relationships, are enumerated. At the same time, the author deliberately raises the question so as to receive a negative answer to it and then to extend the latter to an evaluation of the role of all commodity-money relationships. For example, recognizing the need to mediate the movement of consumer goods and part of the means of production by a purchase-sale act, he formulates the following question: "However, does this mean that the market is an exhaustive source of information for the adoption of economic decisions and the economy is entirely subordinate to the operation of the law of value?"² It is clear that the answer to this question can be only negative, because the market cannot give

exhaustive information for the adoption of economic decisions and the economy cannot be entirely subjected to the operation of the law of value. However, who, in general, can give exhaustive information? The Gosplan, the Goskomstat, or the Council of Ministers? Obviously, no one. Probably, the question should be raised differently: Does the market give information for the adoption of economic decisions and can correct decisions be adopted without market information? Then the answers and conclusions will be different: Yes, it gives information and without such information it is impossible to manage the economy correctly. The trouble is not that the market "says nothing," but that people do not want to and do not "listen" to it and that the law of value is not utilized even in the spheres in which it operates. The market gives highly important information, without which socialist production cannot develop successfully.

It is precisely the same with the law of value. In fact, it is impossible to say that under socialism the economy is entirely subordinate to the law of value. However, it does not follow from this that it is not subordinate to it at all. Even under capitalism the economy is not entirely subordinate to the operation of this law. However, nor does it follow from this that this law does not operate in it.

The denial or disparagement of the role of commodity-money relationships under socialism was reflected primarily in the attitude toward the market. The market became a swear-word, or people kept silent about it, pretending that it does not exist at all. A. Lyubinin recognizes the existence of the market under socialism, but considers it alien and obviously unsuitable for the economic mechanism of socialist society suffering from such ailments as blindness, nearsightedness, and deafness: "The market cannot answer the question as to where, when, and what new mines and plants should be established, national economic systems should be built, oil and gas prospecting operations should begin, and so forth."³ However, even a spontaneously organized capitalist market "says" when, where, and what new mines and plants should be built. This especially applies to the systematically organized market under socialism: Does it not suggest and dictate to society what and where to build? Obviously, nearsightedness and a loss of perspective appear not at the market, but among people, who look at it and see nothing in it. The market not only is not "silent," but openly "screams" about where, when, and what should be built. Without a study of market tendencies construction can be carried out neither under capitalism nor under socialism. A deep knowledge of the market enables capitalists to establish new and reconstruct old enterprises and to determine fully realistic prospects for a comparatively long period. Conversely, ignoring the market under socialism leads to the fact that even a planned economy is managed with big costs and not in accordance with existing needs.

An impression is created that A. Lyubinin does not make distinctions between the capitalist and the socialist market. As though this is the same market with the same

functions and role in society's life! Like money the market is a more universal means of expansion of economic relations than, merely, an exchange of products. Therefore D. Smoldyrev, who sees in commodity forms and instruments the "supporting structure"—precisely the "supporting structure," not the "foundation"—of the mechanism of real socialist management, is right.⁴

Ignoring the socialist content of commodity-money relationships (and one of their most important elements—the market) leads to setting the market against the basic economic law of socialism. Thus, believing that market demands do not conform to the goal of socialist production, A. Lyubinin tries to show the fundamental differences between effective demand and a fuller satisfaction of workers' needs.⁵ In fact, there are differences between them—not as differences between two different processes, but between the form and content: Under the conditions of commodity-money relationships effective demand appears as one of the most important forms of manifestation of workers' needs. Is a fuller satisfaction of effective demand not the goal of socialist production and does it contradict the content of the basic economic law of socialism? Effective demand of the country's population in contrast to its needs expresses the most urgent and real needs of workers, which can and should be met fully. Of course, it is also important to know needs "in pure form." However, the satisfaction of effective demand in the realization of the main goal of socialist production cannot be underestimated. This has already had a negative effect on production development.

A. Lyubinin groundlessly excludes public consumption funds from the sphere of functioning of commodity-money relationships and the operation of their laws: Their specific nature and gratuity allegedly fully correspond to the directly public content of the socialist economy.⁶ Apparently, it follows from this that payability allegedly does not directly correspond to the public nature of socialist society. Next, on this basis it is possible to conclude that all those connected with payability (evidently, both the author of the examined concept and the author of this article are connected with it) live not under socialism. Thus, ignoring commodity-money relationships leads to the conclusion that the existing socialist society is not socialist. However, even if public consumption funds are considered most corresponding directly to the public nature of socialism, even in this case they are not at all outside the sphere of commodity-money relationships. Do they not participate in the formation and movement of the market? It is clear that without an extensive utilization of commodity-money relationships it is impossible to correctly form and to efficiently utilize public consumption funds. The role of commodity-money relationships in this process not only does not weaken, but even intensifies. They penetrate to an ever greater extent even into spheres, in which they were hardly applied before (as, for example, public health, sports, and so forth).

An interpretation of the most direct public nature of socialist production is of great importance for an explanation of the essence and nature of commodity-money relationships under socialism. This problem is one of the central ones in the debate. The following became clear in its course: Those that recognize the directly public nature of production deny or belittle the role of commodity-money relationships under socialism. However, those that are in favor of the widest development of these relationships deny the directly public nature of socialist production. This is exemplified in an especially graphic manner by the clash of two polar positions: of D. Smoldyrev and of A. Lyubin. The former calls for completely rejecting the concept of the direct public nature of socialist production, because it is at variance with the real relationships of socialism—commodity-money relationships. The second, conversely, sees the advantages of socialism only in the directly public nature of production. His logic is as follows: Commodity-money relationships as mediated ones allegedly can and do exist where there is no directly public production.

However, the question can also be raised as follows: Either directly public or commodity-money relationships? Perhaps it is time to raise it differently—not “either-or,” but “and-and”? In connection with this the directly public nature of production should not be rejected in theory or practice. Something in the directly public nature of socialist production itself, primarily the postulate that mediated commodity-money forms always play a negative role, but directly public forms, only a positive role, should be rejected.

The level of production socialization should be in accordance with the attained level of development of productive forces. The history of the construction of socialism in our and other countries has shown more than once that running ahead here has a negative effect on the development of production and the solution of many social and economic problems. For example, the transition to meeting needs in the sphere of services only through publicly organized forms and the exclusion of individual and cooperative forms from this sphere have led to a sharp reduction in the level and volume of met needs for services. Therefore, only a plus should not be placed on the side of directly public relationships and only a minus, on the side of commodity-money relationships.

Before raising the question of the connection of commodity-money relationships with directly public relationships, it is necessary to agree as to *what* should be understood by directly public production. As B. Rakitskiy noted correctly, for the time being a too wide range of phenomena is understood by it.⁷ Furthermore, the directly public nature of production often was considered as appearing immediately in finished form. However, it should be considered in a constant development, not as a solidified phenomenon. The socialist phase is at the initial stages of its development and, consequently, the directly public nature of production, which under

socialism and communism has big differences, is at these stages. The directly public nature of production is faced with a long path of development, on which it will acquire ever newer features.

The establishment of public and, primarily, national socialist property signified that public production from hiddenly public became openly public. Society appropriates decisive means of production. Production is organized in the interests and on a scale of all society. In this sense production has become directly public, which is manifested in such attributes of socialism as planned nature, unity of goals and actions, direct distribution and redistribution of the produced product, and so forth. At the same time, production is managed here not only by society, but also by its individual links in their own economic interests, which can conflict with public interests. Production is managed through various production collectives, which are relatively isolated economically from society and other producers. Thus, there is a need for mediated contacts and relations.

The existence of a relatively economic isolation of socialist state enterprises (and the existence of cooperative enterprises) indicates that on a society-wide scale production is directly public not in a full measure. Hence its supplementation with indirect relations, without which there is no directly public production today.

Socialist production relations include elements different in the level of maturity and direction. Some elements wither away, while other rise to higher stages. In this respect commodity production is not an exception. Various social forms (public, cooperative, and individual) are singled out in it, each of which being characterized by specific frameworks of the direct public. In each of the noted social forms, in accordance with the attained level of development of productive forces, its own goals and moving incentives for development function and there is its own level of isolation and socialization of production. This should be taken into account in the economic mechanism.

Under socialism commodity production itself is managed by socialist commodity producers—collectives of state industrial enterprises, sovkhozes, kolkhozes, and so forth. A relative economic isolation of these commodity producers exists on the basis of public, primarily national, socialist property. Therefore, mediated and direct (directly public) relationships are in an indissoluble interconnection and interaction. The complexity of socialist production relationships lies in this. It cannot be said that they are only directly public or only mediated relationships. Commodity money relationships exist not outside directly public relationships, but within them.

Commodity-money relationships appear as the most important element in planned economic management under socialism. Here conformity to the plan cannot be realized without commodity-money relationships and

without the utilization of the law of value. However, nor can commodity-money relationships under socialism develop and exist without conformity to the plan. Therefore, it cannot be considered that the level of development of conformity to the plan is inversely dependent on the degree of development of commodity-money relationships. There is no such direct dependence. Conversely, the formal and insufficient utilization of commodity-money relationships has weakened the planned nature of production development and has deprived conformity to the plan of strong "supports," which are created by an active creative and planned production activity of all low-level national economic links. Conformity to the plan is realized not only from the center, but also at all other national economic levels, primarily at the level of enterprises and associations. The need for the participation of all links in planning is due to the fact that at every level there are specific proportions, opportunities, and potentials. Socialist society will be able to disclose its advantages not only on the paths of planned development of production management from a single center, but also the maximum possible development of the initiative and creative activity of all low-level links and all individuals. Without this public economic interest will not be realized and there will be no advances in centralized planned management. In connection with this it is necessary to approach in a new way the planned centralized management of the national economy and the utilization of commodity-money relationships. V. I. Lenin, as applied to the transitional period, urged people not to surrender to the authority of socialism of feeling, or to the old Russian, semi-lordly, semi-muzhik, and patriarchal frames of mind characterized by an instinctive contempt for trade. It is permissible to use any and all economic transitional forms and it is necessary to be able to use them once there is a need for this.⁸ This thought of V. I. Lenin also remains timely today under restructuring conditions, because, whereas "semi-muzhik and patriarchal views" of commodity-money relationships have disappeared owing to a rise in the cultural and technical level, "haughty socialist views" of them to the effect that they are becoming, or have already become, things of the past have appeared.

Commodity-money relationships play a vast progressive role in the development of socialist production. It can be asserted with good reason: The progress of socialist society will be largely determined by the extent to which it will be able to utilize commodity-money relationships. Without them it is impossible to create strong economic goals and incentives for production development and an efficiently operating economic mechanism. An improvement in planning, intensification of material interest, expansion of the independence of low-level links, and introduction of full cost accounting and self-financing require a more "respectful" attitude toward commodity production. The elimination of wage leveling in the distribution of material wealth, further intensification of the fight against bureaucratism and undemocratic

administration, expansion of democracy, and, consequently, acceleration of the social and economic development of our society at large are inseparably connected with the activation of its potentials.

Footnotes

1. EKONOMICHESKIYE NAUKI, 1987, No 9, p 55.
2. EKONOMICHESKIYE NAUKI, 1987, No 9, p 55.
3. EKONOMICHESKIYE NAUKI, 1987, No 9, p 55.
4. See: EKONOMICHESKIYE NAUKI, 1987, No 8, p 50.
5. See: EKONOMICHESKIYE NAUKI, 1987, No 9, pp 56-57.
6. See: EKONOMICHESKIYE NAUKI, 1987, No 9, p 56.
7. See: EKONOMICHESKIYE NAUKI, 1987, No 9, p 63.
8. See: V. I. Lenin, "Poln. sobr. soch." [Complete Works], Vol 44, pp 227-228.

COPYRIGHT: Izdatelstvo "Vysshaya shkola," "Ekonomicheskiye nauki," No 5, 1988.

11439

Goskomstat Official Describes Formation of GNP Indicator

18200216b Moscow EKONOMICHESKIYE NAUKI in Russian No 5, May 88 (signed to press 12 Apr 88) pp 138-141

[Article: "Gross National Product: What It Represents and How It Is Calculated"]

[Text] The Goskomstat SSSR report "On the Results of Fulfillment of the State Plan for the Economic and Social Development of the USSR in 1987" for the first time presents information on the dynamics of the USSR gross national product. In connection with this the following question arose: What necessitates such an indicator and how is it calculated?

The editorial department asked Boris Timonovich Ryabushkin, deputy chief of the Administration for the Balance of the National Economy of Goskomstat SSSR, candidate of economic sciences, to answer it.

The indicator of the gross national product is introduced into the accounting and planning system as of 1988. The first official calculations of this indicator are already known: In 1986-1987 the USSR gross national product increased by 8 percent, including in 1987, by 3.3 percent. Why are these calculations needed?

As is well known, national income was and remains the main generalizing and evaluating indicator of the country's social and economic development. It characterizes the final results of activity of enterprises in the sphere of material production—the basis for society's life. With respect to it the nonproduction sphere, no matter how energetically it expands, is secondary. Other generalizing indicators of national economic development, including the final national product, also retain their role and significance.

At the same time, the fundamental changes in the country's economic mechanism occurring under the effect of the radical reform in management, the "emancipation" of the operation of the law of value, and the objective need for a substantial development of international economic relations dictate the need for the introduction into the economic turnover of measurers, which, on the one hand, would facilitate the international comparability of the results of economic activity and, on the other, expand the possibilities for an overall analysis of the work of all enterprises, organizations, and institutions at various hierarchical levels and in a territorial breakdown and for a study of the flows of income (financial resources) among all economic subjects. The indicator of the gross national product (or the gross domestic product) widely applied in international statistics (and, naturally, in foreign countries) can become such a measurer.¹

The main distinctive feature of the gross national product (GNP) lies in the fact that it reflects the final results of activity *not only of material production, but also of the nonproduction sphere*. It accumulates income from the economic activity of enterprises, organizations, and institutions of the national economy as a whole, as well as of the population employed in it. The GNP also includes depreciation deductions from fixed capital for production and nonproduction purposes.

Whereas national income characterizes *the material resources of production during the examined period*, which are assigned for society's current needs (primarily for the population's personal consumption) and for expanded reproduction, the GNP reflects *the resources of material output and services* assigned for consumer needs, investment activity, export, and other purposes.

Two basic methods of calculating the GNP—the production method and the final use method exist in foreign statistics. In the accuracy of calculation preference is given to the latter. The difference arising in these two methods is determined on the basis of final use data. According to the first method, the GNP is determined in the form of the sum of "value added by processing" in economic units included in the sphere of economic activity. According to the UN International Standard Industrial Classification, the following are included in the sphere of economic activity: agriculture, hunting, forestry, and fishing; the mining industry, including quarry exploitation; the processing industry; electric

power engineering and gas and water supply; construction; wholesale and retail trade, their warehouse facilities, restaurants, and hotels; transport, warehouse facilities, and communication; finance, insurance, operations with real estate and commercial services; municipal, public, and personal services. At the same time, it should be kept in mind that the enterprise, not the type of activity, appears as the classification unit here. However, in the balance of the national economy the classification unit is more uniform, which makes it possible to characterize the sectorial structure of production more accurately, but hampers the study of financial flows among economic units.

"Value added by processing" (to a certain extent this indicator is similar to "standard-net output") determined by the difference between the indicators "gross output" and "intermediary consumption" is the final result of activity of the economic unit. "Gross output" is the volume of production of material wealth and services, basically, realized (or intended for realization) by economic units, as well as conventionally evaluated (for material production sectors gross output is the volume of produced products). "Intermediary consumption" represents current expenditures on the purchase of raw materials, supplies, fuel, electric power, semifinished products, and so forth, as well as the payment for production and other services. Thus, "value added by processing" reflects the contribution to the total flow of material wealth and services reaching final consumers. The summation of the "value added by processing" of all the sectors of economic activity forms the GNP at the macro-level. At the same time, however, there is a transition from the producer's price (enterprise price) to the market price (sales price, or the final use price), as well as from the GDP to the GNP. This is done as follows: Indirect taxes are added to the GDP at the producer's prices and subsidies are deducted from the obtained sum. The GDP at market prices is the result. After the balance of factor income received from abroad is added to it, a result equal to the GNP at market prices is formed.

The end use method applied in GNP calculation makes it possible to describe the structure of and directions in the movement of the totality of final material wealth and services. At the use stage the GNP (the UN diagram) includes the following components: personal consumption of goods and services financed by the population's income; final consumption of state organizations and institutions; capital investments; increase in material circulating capital (stocks); export (less import) of goods and services; balance of factor income received from abroad.

Let us explain some of these entries. The calculation of personal consumption includes durable goods (except for dwelling houses and other investment purchases) and nondurable goods purchased by the population, as well as paid services both of a production and of a nonmaterial nature. This group also includes a conventionally

calculated rent for living in one's own home. This "count-up" is motivated by the fact that the GNP represents not only a resultative indicator of economic activity, but also a generalized (per-capita) description of the level of well-being.² The final consumption of non-commercial organizations is determined by the amounts of current expenditures (without investment costs), including depreciation deductions. By the final consumption of state organizations and institutions³ is meant the totality of material wealth (without investment costs) and services performed for their own needs. In practice, it is determined by the amount of current expenses (including depreciation deductions) for the maintenance of the apparatus of management bodies and other state organizations providing services in a charge-free form.

The sum of capital investments and of the increase in material circulating capital (stocks) approximately corresponds to the indicator "gross-accumulation" if it were calculated in Soviet statistics. Export-import operations, along with material wealth (as in Soviet statistics), also include services.

The stated principles of GNP calculation in international statistics formed the basis for the method of computing this indicator for our country. Two approaches are used in this case. In the future they will become the components of a single methodology of GNP system calculation coordinated with the drawing up of the national economic balance. The first approach is a method of calculation beginning with the enterprise level. The second, a method of calculation at the macro-level with the utilization of "transitional keys" from the existing principle of computing the consolidated indicators of the national economic balance (national product, national income, and so forth) to GNP calculation.

The second approach has been realized now. As indicated, according to the production method the GNP is determined by the difference between "gross output" and "intermediary consumption" calculated for all national economic sectors. Each of the mentioned indicators is calculated in four totaled lines: "production sphere," "nonproduction sphere," "population," and "foreign countries."

For the production sphere "gross output" can be expressed by the indicator of the gross national product. Intermediary consumption includes material expenditures taken into account in the calculation of national income (without depreciation); elements of the surplus product included in production costs—payment by enterprises for material production of nonmaterial services (passenger transport, the financial and credit system, scientific institutions, and so forth).

For the nonproduction sphere "gross output" is equivalent to the volume of services in monetary terms. If this represents paid services, the indicator is measured by the

amount of proceeds. The volume of charge-free services is reflected through amounts of current expenditures (including the wear of nonproductive fixed capital).

The "population" is shown only as the owner of dwelling houses. In this case "gross output" is a conventionally calculated rent and "intermediary consumption," current expenditures (without depreciation) connected with the maintenance and current repairs of dwelling houses.

The concept of "foreign countries" pertains to the flow of income of the wage and profit type (in all the forms of its distribution) between our country and other countries.⁴

The schematic diagram of USSR GNP calculation according to the components of its end use approximate to the UN Standard System of National Accounts envisages the summing up of the following components:

- volume of consumption of material wealth and services by the population (less depreciation of available housing and traveling allowance);⁵
- standard rent for living in one's own home;
- services rendered by organizations of the nonproduction sphere to society at large, including military expenditures (except for organizations engaged directly in production servicing);⁶
- capital investments (from all sources);
- increase in material circulating capital and reserves;
- export (less import) of goods and services.

Only individual, the most general, problems concerning the methodology of USSR GNP calculation are reflected here. GNP recalculation in comparable prices is a special problem. It should be made for each component (in accordance with the presented diagrams of GNP formation) close to the standards of international statistics. Improvement in the deflator⁷ according to consolidated resultative indicators applies equally to national income and to the gross national product.

The further development of the GNP system calculation will be connected with an expansion of the planned and analytic functions of this indicator. As the experience in its introduction at the national economic level (and in terms of republics) is accumulated, the sphere of application will expand, at least to sectorial and departmental levels and in terms of oblasts, and the periodicity of its computation will be shortened.

It will be necessary to develop a GNP calculation system connecting the macro-level (including key national economic sectors pertaining both to material production and to the nonproduction sphere), main flows of income and financial resources, and basic channels of end use

with departmental and territorial groupings. The further development of work on computing and using the GNP indicator will require an improvement in the information base in the direction of a greater orientation toward bank reporting, statistics of finances, and bookkeeping reporting of enterprises (associations), organizations, institutions, and ministries (departments). At the same time, the compatibility of the information base of the national economic balance and of the system of balance tables of GNP calculation should be ensured.

Under the conditions of a practical realization of the party's strategic policy of accelerating the country's social and economic development, fundamental restructuring of national economic management, and strengthening of the internationalization of world economic relations the introduction of the indicator of the gross national product into practice will make it possible to intensify the economic research and analysis of social and economic processes in our country and its international cooperation with foreign countries.

Footnotes

1. The gross national product is bigger than the gross domestic product by the amount of the balance of income received from abroad.

2. This description is used in international comparisons. The national income indicator is more often used for an internal analysis for the indicated purposes.

3. Here we have in mind not only general management bodies (including the army, police, and legal procedure), but also state organizations providing free services for the public.

4. The amounts of the flow of the indicated income abroad and back in our country are still relatively small.

5. Formally following the logic of construction of the UN Standard System of National Accounts, it is necessary to exclude the material part of expenditures of enterprises in the sphere of material production connected with services of a social and cultural nature for their workers.

6. The published budget reflects the expenditures of the USSR Ministry of Defense on the maintenance of the personnel of the Armed Forces, material and technical provision, military construction, pension security, and a number of other expenditures. However, the financing of research and development, as well as of purchases of arms and military equipment, is carried out under other subheads of the USSR state budget.

7. A deflator is a price index for recalculating consolidated cost indicators in comparable prices.

COPYRIGHT: Izdatelstvo "Vysshaya shkola," "Ekonomicheskiiye nauki," No 5, 1988

11439

Cartoon: Pay for Work

18200080 Moscow TRUD in Russian 15 Oct 88 p 4

[Drawing by I. Anchukov]



"I propose that our enterprise conduct an economic experiment: from each according to his abilities, to each according to his work."

UD/322

PLANNING, PLAN IMPLEMENTATION

Comments on Magnitka Steel Plant's Rejection of State Order

18200026a Alma Ata KAZAKHSTANSKAYA PRAVDA
in Russian 31 Aug 88 p 1

[Article: "What Happened at the Kazakhstan Magnitka Steel Plant?"]

[Text] Two serious events, for the Karaganda Metallurgical Combine, unexpectedly occurred at the same time and produced an extreme situation.

The first was a joyful one which inspired confidence in the future: following a long period of failures, the collective succeeded in carrying out its plans for the first and second quarters and in issuing more than 100,000 tons of rolled metal over and above the plan. This achievement, which was generally recognized, was the result of the democratization of production relationships and the transfer of a portion of the administrative functions over to the labor collectives.

The second event, in one stroke, removed from their hands the power to control the results of their own endeavors: by a resolute decision of the USSR Ministry of Ferrous Metallurgy, above-plan output was included in a state order and this moreover accounted for 100 percent of the metal being produced. The following telegram was sent to the country's Minister of Ferrous Metallurgy C.V. Kolpakov: "The council of the labor collective at the Karaganda Metallurgical Combine has decided against accepting the changes in the production plan and in the state order for rolled metal, as established by USSR Minchermet [Ministry of Ferrous Metallurgy] for the third quarter of the current year. Deputy chairman of the council S. Drozhzhin."

It is hardly necessary to emphasize the reaction which this decision evoked among the metallurgists. Let us begin with the fact that it openly contradicts the USSR Law Governing a State Enterprise (association). But there is another aspect to this problem: having seen the true fruits of worker self-government, the personnel simply no longer accept the command style of management. The restructuring of their own production operations simple does not come that easy for them. It was not an easy matter to extricate the enterprise from its difficulties and satisfy all of the customers—especially in the absence of a special regime of favors being granted by the branch's staff, while relying only upon economic and democratic levers.

And suddenly—it seemed that none of this benefited them and success was not at hand. Our correspondent visited the combine's departments and services and listened to what the personnel had to say regarding this new development.

Vladimir Khvostov, a senior heating specialist in the pressing department and member of the council of the combine's labor collective: Will we have to endure for long the bureaucrats in the various ministries, including our own? There they are surely aware that, given our present weak production base, an increase in the plan in the middle of the year is fraught with complete failure. Indeed the plans for the five-year plan on the whole and by years was long ago balanced in terms of all of the metallurgical and other processing stages. Moreover, they were discussed and approved in the labor collectives. Minchermet itself approved all of the tasks. And USSR Gosplan long ago approved them. Why violate the law governing an enterprise, where the thought is clearly expressed that the long-term plans are stable and not subject to changes?

Aleksandr Mlyavyy, crane operator: our enterprise fell behind over the course of many years. And now with the conversion over to the new managerial conditions, following the election of new and energetic leaders, it has extricated itself from its difficulties. It is just now beginning to stand on its own legs. And what happens? I believe that under these conditions the ministry has decided to clip our wings.

Viktor Yermenko, deputy director for personnel of the combine and member of the council for the labor collective: the resolute decision undertaken by Minchermet is inflicting psychological harm upon the collective. During general economic training exercises, all of us mastered the new ideas for enterprise independence. The personnel believe in them. Each individual is displaying concern for the combine's economy. Thus this bureaucratic wilfulness is discrediting the idea of restructuring.

Comments by KAZAKHSTANSKAYA PRAVDA'S Correspondent for Karaganda Oblast V. Mogilnitskiy:

The production and social problems of the Karaganda Metallurgical Combine are having a profound effect upon its collective. The degree to which it has fallen behind is affecting each individual. For example, crane operator A. Mlyavyy has been living for more than 10 years with his wife and two children in a small dormitory apartment. He has been waiting in line this long to obtain an apartment. This year the enterprise's administration was able to allocate a proper amount of funds from profits for the erection of housing. The initial five-story buildings, erected using the economic method, rose rather quickly in Block 68. The list of people waiting for housing grew smaller.

Other improvements, deemed impossible earlier, also appeared. Above-plan profits served as a stimulus for developing the enterprise's subsidiary economy.

Many such changes took place. The metallurgists are clearly aware what brought them about: over-fulfillment of plans and accumulated profits. The combine's future is dependent upon these factors: indeed, in order to

"remain afloat" in the future, production operations must constantly be improved and modernized. Money is required for this. In conformity with the renovation program, the plans call for capital repairs to be carried out on six large and important metallurgical installations during the August-November period: two blast furnaces, two converters, agglomeration machines and a rolling mill. The ministry is well aware of this program.

And what was the minister's reply to the telegram sent on 3 August? Upon departing Temirtau I learned that there had been no reply. City of Temirtau, Karaganda Oblast.

Comments From the Editorial Board's Department for Industry, Construction and Transport:

The Editorial Board contacted USSR Minchermet for the purpose of asking two questions: what brought about the sudden change in the plan for the Karmetkombinat and how did the branch's staff react to the telegram from Temirtau. But it turned out that the telegram was by no means given the same operational attention normally accorded to a plan. Evidence of this was not noticed immediately. "Call in a day or two," requested the assistant minister. During this period, he learned that the minister had not received the telegram and that it was being reviewed by his deputy B.I. Ashpina.

Nor was any haste displayed in conducting this review. The deputy minister was not prepared for a discussion and requested time in order to acquaint himself with the problem. The twenty second day of his familiarity with the text of the telegram passed.

However, Boris Innokentyevich was quite clear regarding one circumstance.

"Our Cherepovets is in a very grave situation."

All of the remaining arguments pronounced following the preparations emphasized this fact. Here there were references to a certain understating of plans which were approved earlier and to agreement by the director to "aid Cherepovets," and to the conditions which had been created (additional resources, allocated in connection

with the stopping of a blast furnace) and, finally, to the poor financial status of the enterprise, which one way or another should be made profitable: the rolled metal should cost the same, whether planned or above-plan. The chief consideration—more of it should be sold. The reasoning of commands is not being taken into account in the logic of "pre-reform" economic thinking and this is having an effect. Everything stated by the deputy minister cannot endure being mentioned even once: what only a combine which operates on a self-financing basis can decide is either profitable or non-profitable for itself. After having soberly weighed its potential, the collective reached a simple opinion—no, it was still unprepared to conceal itself behind sluggishness or stupid bungling which is also released from above. It has its own computations for the first year of operations under the new conditions. The formation of funds is in progress and the enterprise is by no means indifferent to the symbol under which the product is produced: the planned output is paid for from the wage fund and the above-plan output—from the material incentive fund. Nor is it indifferent to the method for "assisting Cherepovets": it is one thing to increase the contribution to the all-branch indicators through the use of one's own additional metal and quite another to fulfill another's nomenclature, one which requires expenditures for a change in technology. If work is not carried out today in behalf of the stockpile, then deliveries in satisfaction of direct agreements will be threatened.

"And this is the devil's sabbath with the plans—the most 'stable' program of our ministry," stated the director of Karmetkombinat O.N. Soskovets.

A stable program, one which destabilizes the economies of enterprises, represents a common desire to consider well the "whole" at any cost.

Properly speaking, the editorial board did receive an answer to the first question. But what answer was provided by Minchermet for the second question? Just as in the past, this answer is still being awaited by the collective of the Kazakhstan Magnitka Steel Plant, which has rebelled decisively against the obsolete managerial methods.

REGIONAL DEVELOPMENT

Draft 'Concept' For ESSR Economic Accountability

18200045 Tallinn SOVETSKAYA ESTONIYA in
Russian 30 Sep 88 pp 1-2, 1 Oct 88 p 2, 7 Oct 88 p 2

[Draft "concept": "Concept for Estonian SSR Economic Accountability (Theses)"; first four paragraphs are SOVETSKAYA ESTONIYA introduction; passages in boldface as published]

[Text] The provisional scientific collective for the development of the concept for the republic's economic accountability at the Institute of Economics of the Estonian SSR Academy of Sciences completed the first part of its work. As of today we begin the publication of the results of the large-scale semiannual work by this group—theses of the concept for Estonia's economic accountability.

This is not yet the end of the extensive work. This represents only the basic tenets, from which after an all-around constructive discussion a more detailed draft for economic accountability should be worked out. Different alternatives have been proposed for the solution of many individual problems. The working group believes that all details should not be rigidly fixed today. First of all, it is necessary to concentrate on the solution of fundamental problems and to leave the possibility of making clarifications in specific details in the course of work.

The work is continuing. The group at the Institute of Economics of the ESSR Academy of Sciences awaits suggestions and supplements at the following address: Provisional Scientific Collective at the Institute of Economics of the ESSR Academy of Sciences, 7 Estoniya Boulevard, Tallinn, or the department of industry of the editorial board of the RAHVA HAAL newspaper.

Finally, we will indicate the family names of those who did the basic work on the preparation of the theses: Ruslan Dontsov, Endel Eero, Lembit Ebre, Kalyu Khabikht, Tynis Jakob, Ants Kala, Siim Kallas, Tiya Karing, Pyeeter Kask, Yulo Kess, Arvo Kuddo, Kalev Kukkk, Ants Kulo, Yuri Laving, Olev Lugus, Reyn Miller, Sulev Myaeltsemeyes, Eynar Nirk, Reyn Otsason, Albert Paltser, Endel Ploom, Valentin Porfiriyev, Aare Purga, Myart Puusepp, Rayvo Rayamya, Matti Raudyarv, Ilmar Selge, Arvo Sirendi, Tarmo-Yaan Tyeleyd, Ene-Mall Villemi, Endel Vitsur, Kharri Elmar Volmer, and Eyno Vyaertnyu.

1. General State

Despite some rise in volume indicators and the construction of social infrastructure projects, on the whole, a halt in the rise in the standard of living and a deterioration in the quality of life and in the condition of the living environment have been noted in Estonia recently. With the population growth there has been a dangerous slowdown in the annual rates of growth of the national income, which comprised 5.6 percent during the 9th Five-Year Plan, 4.2 percent during the 10th Five-Year Plan, 3.2 percent during the 11th Five-Year plan, 2.1 percent in 1986, and less than 2 percent in 1987. At the same time, the rise in prices was not taken sufficiently into account.

Whereas at the end of the 1930's economic, social, and demographic development in Estonia and Finland were approximately the same, at the present moment Estonia lags significantly. Every year we increasingly drift away from the top of the list of developed states in such objective parameters of social development as the population's average life expectancy, infant mortality, the national gross product, the standard of living, and so forth.

Social Indicators in ESSR and in Some Capitalist Countries

Average life expectancy of men (years)	Average life expectancy of women (years)	Mortality in infants under the age of 1 per 1,000 babies	Number of students at higher educational institutions in percent of the population aged 20 to 24	
Estonian SSR	65.5 (1985/86)	74.9 (1985/86)	16.1 (1987)	18* (1986)
Sweden	73.8 (1985)	79.7 (1985)	5.9 (1986)	38 (1983)
Finland	70.1 (1985)	78.5 (1985)	6.3 (1985)	32 (1983)

*As an estimate (the corresponding indicator in the USSR is 21).

In the republic's national economy a situation has been created in which Estonian SSR authorities manage with absolute power only 13 percent of the production activity. The management and planning of the remaining production activity to a bigger or smaller degree are

within the competence of Union central bodies (ministries, committees, and so forth). Hence the intensifying lack of proportionality and inefficiency of production activity and disproportions in the overall development of the national economy of both rayons (cities) and the

entire republic caused by the pursuit of narrow departmental interests, disunity, and so forth. Proceeding from the principle of sectorial management and planning, Union and republic departments operate in an uncoordinated manner, ignoring the interests of the republic (including rayons) as a whole and, ultimately, the interests and needs of the entire state.

The plenum of the Central Committee of the Communist Party of Estonia gave an accurate evaluation of the situation: An integrated economic complex and a policy of managing it have not been formed in Estonia. Instead we have a set of random production facilities with dubious economic efficiency and a depreciated material base. The fact remains a fact: The quality of our life has been deteriorating constantly during the last decades.

Machine building and instrument making, as well as metalworking industry, enterprises located on Estonia's territory are specialized on the basis of narrow departmental interests, which has led to an economically inefficient utilization of manpower and material resources and to the formation of an inefficient production structure in the Estonian SSR. For example, in Estonia in 1985, on the average, 504 tons of metal were expended on commodity output valued at 1 million rubles, which exceeded both the average level of metal intensiveness in the Latvian and Lithuanian SSR and the average level throughout the country by 15 to 25 percent. This necessitates big transport expenditures and groundlessly loads the country's railroads. Many inefficient freight hauls between the Estonian SSR and other Union republics attest to the need to reduce the material and fuel intensiveness of Estonia's economy and, at the same time, to increase its science intensiveness.

The republic's industrial output is noted for its low quality. In 1987 export output made up only 3.8 percent (200 million rubles) in the total volume of gross industrial output and highest-quality output, 7.5 percent (61.3 percent of the certified output). According to the data of the Estonian Republic Administration of the State Committee for Standards, about 30 percent of the checked products proved to be rejects and the violation of technological and design documents (including a conscious nonfulfillment of part of the technological operations) reached 40 percent here and there.

Most of the republic's fixed industrial capital is depreciated. The degree of wear makes up 48 percent and in some sectors (building materials industry), even 70 percent. During the last five-year plan the value of fixed capital increased by 30 percent, but gross output, only by 12.6 percent and labor productivity, by 14.3 percent. Output-capital was reduced by 13 percent (during the 10th Five-Year Plan, by 5.8 percent). From 10 to 30 percent of the entire equipment pool has been operating for more than 20 years. In 1988 only 30.2 percent of the new equipment was used for the replacement of old one.

At the same time, the existing recentralized system of material and technical supply does not enable us to defend the republic's interests even within the framework of USSR general state programs. For example, in accordance with the government decision this year we must replace almost 12,000 tons of motor gasoline and diesel fuel with condensed and compressed gas. This assignment will remain unfulfilled largely because suppliers do not send sufficient quantities of the necessary equipment. The interruptions in the provision of the population and the national economy with liquid fuel have become chronic.

Dnepropetrovsk and Makeyevka metallurgical combines have now underdelivered to us a significant quantity of rolled ferrous metal products, Zhdanov and Volzhsk pipe rolling plants, of steel pipes, Sumgait enterprises, of high-pressure polyethylene, the Omsk Plastics Plant, of polystyrene, and so forth.

Rural workers did not receive a big quantity of equipment necessary for the commissioning and maintenance of dwelling houses and production premises in order. Thus, we fall into the clutches of someone else's negligence and are unable to undertake something ourselves.

Enterprises, associations, and organizations of Union subordination participate in the republic's social and economic activity to a much lesser extent than other enterprises, associations, and organizations. Their role (as compared with others) in the solution of the republic's problems, or in the participation in them, is often a consumer, not creative, role. The effect of republic bodies on them is minimal even when the republic has to fulfill all-Union programs.

Despite the fact that the overwhelming majority of farms and enterprises of the agro-industrial complex are under republic subordination, the main center of the administrative-command economy is in the USSR Gosplan and the USSR Gosagroprom. Republic departments are mainly intermediaries without rights. This has led to disregard for the interests of the republic's agriculture and population and to grave social and economic consequences. Thus, intrarepublic discrimination against agriculture is aggravated even more.

Since products produced in the Estonian SSR are distributed mainly by nonrepublic departments, Estonian SSR government bodies are unable to be responsible for the population's provision with key food and industrial goods. In many cases an increase in the production of products in the republic is accompanied by a reduction in the market stocks of the same goods allocated to us.

The rights of local bodies are purely symbolic. Owing to sectorial management, the solution of thousands of minor problems, which, in fact, should be subject to decision locally, are concentrated in central departments and supreme general state bodies of power. This makes the solution of problems extremely long and intricate.

The condition of the environment has deteriorated. In 1986 Estonian SSR industrial enterprises discarded 570,610 tons of pollutants into the air basin. A total of 193.9 million cubic meters of polluted water and 240.3 million cubic meters of only mechanically purified sewage were dumped into the republic's reservoirs. The residents of Kokhtla-Yarve suffer from cardiovascular diseases 1.5 times, from hypertension, 2.7 times, and from bronchitis, 2.3 times more often than Rakvere residents, who live under the same climatic conditions, but with a comparatively clean atmosphere. In Kokhtla-Yarve there are 1.7 times more premature births and anemia among pregnant women is 2.2 times more frequent than in Rakvere. In 1981 there were 2.5 cases of disability caused by diseases of respiratory organs per 10,000 residents in Kokhtla-Yarve, 2.2, in Narva, and 0.7, in Tallinn.

Many main water horizons are polluted with biogenic substances (especially in Northern and Central Estonia), the biological equilibrium of soil waters has deteriorated (only one-fifth of the republic's lake water is in a relatively good condition), land is degraded, and rain acidity increases. The condition of the republic's many rivers (almost all the rivers of Northern Estonia, Emajygi, Vykhandu, and Pyarnu) is unsatisfactory. The ecosystems of Chudskoye Ozero [Lake Peipus] and of the Matsalu floodplain are in danger. North-Eastern Estonia, Kunda and Maardu regions, and, in part, Tallinn are conflict regions, where the natural equilibrium of all environmental components has been disrupted.

Enterprises of eight departments (pulp-paper and municipal service enterprises and enterprises of the USSR Ministry of Petroleum Refining and Petrochemical Industry, of the agroprom, and of the USSR Ministry of Fertilizers are the biggest of them) account for 98.9 percent of the polluted water and, basically, power engineering of all-Union subordination accounts for 66 percent of the polluted air. The system of sectorial subordination of industry has led to an irresponsible expenditure of natural resources. The shaft mining of shale leads to losses reaching 48 percent and in open pits, 18 percent. The USSR Ministry of the Coal Industry does not coordinate plans for development with local bodies (on the basis of article 73 of the USSR Constitution the utilization of natural resources is within the competence of USSR government bodies), as a result of which the useful land area and forest and peat reserves located at the shale mining place are often destroyed. The waste appearing during shale production (barren rock and so forth up to 7 percent) is not utilized satisfactorily at all. And this despite the fact that in Estonia sand and rubble are very limited.

The economically and socially unsubstantiated and harmful migration of people has become a serious demographic, economic, and social problem. In Estonia the intensification of many contradictions is connected precisely with this phenomenon. In addition, in Estonia the interrepublic migration has led to the appearance and

intensification of tension in national and international relations. Owing to newcomers, in 1961-1987 Estonia's population increased by 180,000 people.

The rapid growth of savings also characterizes the imbalance of the economy. During the 2 and 1/2 years of the present five-year plan 392.5 million rubles were placed in citizens' deposits. As of 1 July 1988 the sum of deposits of Estonia's inhabitants exceeded 2 billion rubles.

2. Goal

The development in the name of man of the socialist national economy relying on a resource-saving and ecologically safe technology and deliberately self-developing on the basis of restoration of the right of nations to self-determination and sovereignty of the Estonian SSR is the goal of Estonia's economic accountability.

Estonia's economic accountability is called upon to raise the people's standard of living, to improve the quality of life, and to attain social justice and security.

Estonia's economic accountability is the basis for the development of national culture, education, science, and public health.

Economically accountable Estonia participates in the interrepublic and international distribution of labor with an equivalent and mutually advantageous commodity turnover, which is carried out on the basis of a contractual principle between economically independent enterprises and organizations, as well as among state bodies.

3. Neighboring Relations of Economic Accountability of the Estonian SSR

The conditions of the republic's economic sovereignty and accountability are legal and economic. The former are based on legal norms, which regulate legal and political relations of the Estonian SSR with bodies of state power and administration of the USSR and other Union republics. The reorganization of economic relations of the Estonian SSR with other Union republics and foreign countries is the economic condition.

The program for economic reforms affecting the internal life of the Estonian SSR can be prepared and implemented only when the procedure of foreign relations is determined precisely.

The neighboring relations of Estonia's economic accountability should be regulated in the following areas:

- legal and political relations (with bodies of state power and administration of the USSR and Union republics);
- economic relations (property, budget, monetary turnover, commodity turnover, foreign economic relations, transport, and so forth);—social and humanitarian relations.

3.1. Relations With USSR Legislation and With State and Administrative Bodies of the USSR and Union Republics

The transfer of the Estonian SSR to economic accountability takes place on the basis of the law "On the Transfer of the Estonian SSR to Economic Accountability" together with the adoption of other corresponding legislative acts in supreme bodies of state power of the Estonian SSR and the USSR on the basis of the principle that the sovereign Union republic switching over to economic accountability delegates the following administrative functions on an all-Union scale to USSR bodies of state power: safeguarding USSR defense and conducting USSR foreign policy.

During the transfer of the Estonian SSR to economic accountability bodies of state power and administration of the ESSR, when the ESSR Constitution is changed and the republic's new legislation is established, are not connected with points 3-7 and points 10-12 of article 73 and article 74 of the USSR Constitution, as well as with the provisions of other USSR legislative acts.

With additional legal acts of the Estonian SSR it is possible to extend the operation of laws and other USSR legal acts on ESSR territory, which are necessary from the point of view of the economy and administration of the republic's public life.

Estonian SSR bodies of state administration (with the exception of the ESSR Ministry of Foreign Affairs and the ESSR Military Commissariat) are subordinate only to Estonian SSR bodies of state power.

The ESSR Law on Citizenship defines the status of the Estonian SSR citizen together with its legalization in the passport.

The Estonian SSR establishes passport, customs, and visa regulations independently in accordance with the foreign political doctrine of the USSR.

Relations between the Estonian SSR and other Union republics are regulated on an equal basis and in accordance with contracts ensuring a mutual benefit and interest. Estonian SSR institutions and organizations develop cooperation based on partnership with corresponding institutions and organizations of other republics.

When necessary, Union republics can establish joint organizations.

The Estonian SSR considers it advisable to conclude in the future a Union contract among Union republics on the basis of unanimity (consensus). The Union contract defines the rights of sovereign Union republics, which

they consider necessary to transfer to the jurisdiction of a single central body stipulated by the Union contract and the limits of its competence.

On the basis of the consensus principle Union republics can also adopt other decisions (for example, joint economic and scientific programs and so forth).

By mutual agreement the Union contract among Union republics can replace the USSR Constitution.

3.2 Property

The right to independently possess, use, and administer its property is the basis for the economic independence of the Estonian SSR.

Land, its mineral resources, inland and territorial waters, the shelf, forests, other resources of the biosphere, and other property acquired or developed with state funds and located on Estonian SSR territory are considered the state property of the Estonian SSR. The state property of the Estonian SSR includes the property of state enterprises, organizations, and farms, banks, transport and power networks (systems), property of state institutions, infrastructure projects, and financial resources embodied in the means of production, in planning and design documents, and in other values, as well as other production and nonproduction projects developed with state funds.

The republic's Supreme Soviet on behalf of the people establishes the procedure of ownership, use, and administration of property.

The Union subordination of enterprises, organizations, farms, banks, transport and power networks, facilities, and systems, and communication networks located on Estonian SSR territory is abolished.

By joint agreement between Estonian SSR and USSR supreme soviets installations of an all-Union nature of the USSR Ministry of Defense can be considered USSR property and operate under the conditions determined by this agreement.

All enterprises, including those based on the property of interrepublic or international joint-stock societies, established by other republics and states (or their firms) are subject to taxation on the part of the republic and to its legislation. The procedure of taxation and the amounts of taxes and payments to the budget are determined by the Estonian SSR independently.

The Estonian SSR Government promotes contractual cooperation between enterprises, which have been under direct Union subordination thus far, and enterprises, design offices, and scientific organizations located in other Union republics, or the administrative bodies

representing them. When necessary, corresponding Estonian SSR government bodies conclude contracts for cooperation for a definite period with bodies for the management of enterprises located under Union subordination thus far.

When necessary, the Estonian SSR Government also permits enterprises considered nonrepublic property or based on mixed property to operate on the republic's territory. By nonrepublic property is meant the property of both other Union republics or their enterprises and the property of foreign firms. Enterprises based on nonrepublic property pay taxes stipulated by Estonian SSR legislation to republic and local budgets and strictly observe restrictive orders in the area of environmental protection, social policy, and so forth.

The Estonian SSR Government creates favorable conditions for investments of the capital of foreign firms in industry and other sectors of the republic's economy for the purpose of production modernization.

3.3 Relations With the USSR Budget

3.3.1. On Estonian SSR territory all state taxes enter the Estonian SSR budget. The Estonian SSR budget is independent and is not included in the USSR budget.

State taxes received on Estonian SSR territory and their rates are determined by the Estonian SSR Supreme Soviet or by the corresponding local soviet.

3.3.2. To cover the general needs of the USSR as the union of states (expenditures on defense, expenditures on administration, and reserve funds), the economically accountable Estonian SSR pays a Union tax to the USSR budget. The Union tax is established in the form of a specified sum, whose amount is determined on the basis of an objective and accurately calculated criterion. The specific procedure of determination and payment of the Union tax is established in accordance with an agreement between Estonian SSR and USSR supreme soviets and in the future it will be established by the Union contract.

3.3.3. All deductions for social insurance enter the budgets or the social insurance fund of the Estonian SSR. All expenditures on social insurance for Estonian SSR citizens are also covered from republic resources.

3.4. Banking and Monetary Circulation

3.4.1. The organization of banking and monetary circulation, including the introduction of the Estonian SSR currency and establishment of the procedure of its exchange and rate with respect to other currencies, among them the ruble as the general currency of the USSR, is within the competence of the economically accountable Estonian SSR.

Only the Estonian SSR currency circulates on the domestic market of the Estonian SSR.

3.4.2. The Bank of Estonia puts the currency of the Estonian SSR in circulation and organizes monetary circulation. The coverage necessary for this is created through the transfer of part of the reserves of foreign currency and precious metals from the USSR State Bank to the Bank of Estonia.

The Bank of Estonia is an independent financial institution, whose charter is defined by the Estonian SSR Supreme Soviet, which also manages the activity of the Bank of Estonia. The Bank of Estonia is in partnership relations with the USSR State Bank.

The Estonian SSR currency is convertible into the general currency of the USSR and currencies of other Union republics. The Bank of Estonia establishes the procedure and rate of currency exchange. USSR currencies are exchanged for the Estonian SSR currency at currency exchange centers and bank institutions.

One of the goals of economic development of the Estonian SSR lies in the attainment of a free convertibility of the Estonian SSR currency into the currency of foreign states.

All trade transactions between the enterprises of the Estonian SSR and enterprises and organizations of other USSR Union republics are carried out with due regard for the currency rate.

3.5. Commodity Exchange of the Estonian SSR

3.5.1. The Estonian SSR is independent in the determination of the policy of its commodity turnover. In the conclusion and nullification of trade agreements it proceeds from the people's interests. Contractual obligations are fulfilled unflinchingly.

The Estonian SSR policy of commodity exchange proceeds from an efficient and planned use of the law of value and commodity-market relationships. This presupposes the existence of a real market, competition of goods and producers, lack of monopoly prices, integration of the domestic and the foreign market, and use of a convertible currency as a means of settling accounts.

3.5.2. The commodity exchange of the Estonian SSR develops in two basic directions—as commodity exchange with other USSR Union republics or their parts and as foreign trade on the basis of foreign economic relations.

3.5.3. Real wholesale trade serves as the basis for commodity exchange, which presupposes gradually giving up the allocation economy. The Estonian SSR strives for the development of direct relations of enterprises and economic and supply organizations in the republic with economic partners in other USSR regions, as well as for an enhancement of the role of contractual prices in commodity exchange. Requirements for a mutual benefit and an equivalent exchange serve as initial requirements. With a systematic application they make it possible to realize both collective regional-economic and common national economic interests.

3.5.4. When commodity exchange is organized, the state of the economy of the Estonian SSR and the USSR as a whole at the present moment is taken into consideration:

the lack of a convertible currency, weakness of the export potential, introduction of principles of economic accountability still continues, a real wholesale trade system has not yet been formed, the monopoly position of producer enterprises affects all the spheres of the public reproduction process, and a multichannel and organizationally fragmented supply and sales system functions, in which both forms of wholesale trade and of centralized supply are used in parallel.

Therefore, to protect the common interests of the population and the republic, the commodity exchange of the Estonian SSR with other Union republics temporarily (until the allocation economy is given up in the USSR as a whole) is carried out with regard to centrally distributed products on the basis of general agreements (general contracts) concluded between the government bodies of the Estonian SSR and the government bodies of other Union republics or the USSR Gosplan representing them (if only individual Union republics first switch over to economic accountability) in wholesale prices in effect in the USSR. The volume of limited sold and purchased products is determined in general agreements on the basis of the principle of equivalence of commodity exchange. By agreement among the parties individual items may not be included in the general agreement. In accordance with the development of productive forces and expansion of market relationships the number of items included in commodity exchange agreements is reduced.

3.5.5. In the area of commodity turnover of the Estonian SSR with other Union republics during the period of transition to economic accountability in the part of centrally distributed products at least the present level of commodity turnover is guaranteed. The effect of efficient economic relations is prolonged until the end of the 13th Five-Year Plan. To form the commodity coverage of the local market, the contribution of enterprises operating in the republic increases.

3.5.6. In the commodity turnover of the Estonian SSR with other Union republics in accordance with an agreement between the parties, it is possible to change the principles of price formation and, when the necessary prerequisites appear, to change over from wholesale prices in effect in the USSR to prices in effect in the CEMA system, or world market prices. A gradual transition to world market prices is one of the goals of the economic policy of the Estonian SSR.

Commodity turnover with other Union republics on the basis of prices in effect in the USSR does not exclude an independent price policy of the ESSR Government on the intrarepublic market.

3.5.7. In the implementation of its foreign economic policy the Estonian SSR is sovereign, proceeds from the interests of the republic's inhabitants, and takes into consideration the foreign political doctrine of the USSR.

The republic's Council of Ministers determines the use of currency proceeds of the Estonian SSR and the currency expenditures of the ESSR are covered by its currency proceeds.

3.6. Postal and Transport Communications

3.6.1. The Estonian SSR Government independently organizes communication on Estonian SSR territory and with other regions of the USSR, as well as with foreign countries. Rates of communication services are set by it on the basis of the republic's interests. A direct communication with foreign states is established. The republic issues its own postal instruments of payment.

3.6.2. An appropriate body of the Estonian SSR organizes transport communications with other regions of the USSR and with foreign states on the basis of a mutual benefit and with due regard for the interests of Estonia's inhabitants.

3.6.3. Transport organizations operating on the basis of economic accountability organize transport. They operate on the basis of mutual contracts with transport organizations of other Union republics and foreign states, including:

a) Sea ports and ships belong to sea firms of the Estonian SSR.

b) The aviation organization of Estonia and aviation organizations of other USSR regions (or Aeroflot) carry out air transport on a parity basis. Appropriate charges are made for the use of airports.

c) The railroad (both the railroad network and the necessary rolling stock) belong to the republic's railroad organization. Interrepublic transport is carried out on a contractual basis with railroad organizations of other republics.

4. Internal Relations of Economic Accountability in the Estonian SSR

4.1. General Principles of Economic Management

4.1.1. The organization of economic life in the Estonian SSR is determined exclusively by Estonian SSR legislation.

4.1.2. Pluralism in property relations is the basic principle of organization of property relations in the Estonian SSR. State property relations, cooperative property relations, and individual property relations become the basic forms of relations connected with the ownership of the means of production.

4.1.3. For the purpose of a planned production regulation, permits for production (licenses) are issued to all the republic's production enterprises. These permits indicate the structure of their activity and the necessary restrictions (environmental protection and policy of

labor resources). The permit for production is issued by the republic body of management with the participation of the local soviet. Enterprises, which do not receive permits for production, halt their activity. For production enterprises existing at the present moment the problem of issue of permits for production is examined during the year from the time of transfer of the Estonian SSR to economic accountability and, when new enterprises are established, in each specific case. The procedure of issue and withdrawal of permits for production is established by the Estonian SSR Supreme Soviet.

4.1.4. Every enterprise manages its affairs in the organization of production activity and conclusion of purchase-sale transactions independently, proceeding from economic interest and the restrictions established by law.

4.1.5. The task of the republic government is to create in the process of transformations in the republic a market, on which the supply of goods and services exceeds the demand. The republic government applies organizational measures to ensure the appearance on the market of various producers and a normal competition among them, including the import of similar goods from the foreign market.

In order to develop competition, special antimonopoly legislation is adopted in the republic. Special legislation also regulates problems of enterprise bankruptcy.

4.1.6. State goal-oriented programs, which are provided with resources, serve as one of the forms of implementation of state economic policy.

4.1.7. The republic government must protect the population's interests against the effect of negative phenomena, which can be manifested in the course of economic restructuring. For these purposes the government has the right to apply certain administrative measures within the limits stipulated by law. Such measures can prove to be necessary, for example, for restraining an unsubstantiated rise in prices.

4.1.8. Statistics and reporting are restructured on the basis of needs of the economically accountable republic and the requirements of international statistics. Statistical data in all the areas of society's development should be available to every Estonian SSR citizen.

4.2. Budget System

4.2.1. The Estonian SSR Supreme Soviet determines the procedure of formation and use of the budget of economically accountable Estonia, at the same time, setting the following goal:

—raising the role of the budget in the distribution of the national income to the necessary minimum;

—reducing the share of indirect taxes leading to social inequality through an increase in the share of direct taxes;

—giving up the budget financing of production enterprises (with the exception of financing goal-oriented republic programs).

4.2.2. The function of the turnover tax changes and its significance is lowered. The turnover tax (excise) is advisable primarily as a regulator of demand for some goods, which are of definite significance in economic policy, such as alcohol, tobacco, gasoline, electric power, and so forth.

4.2.3. The rates of taxes on resources (the land tax and taxes on natural resources and manpower) are differentiated depending on local conditions. However, they are uniform for all producers working under similar conditions regardless of the forms of property or subordination.

The amounts of taxes are determined by the republic's Supreme Soviet and local soviets.

4.2.4. To implement a flexible financial policy, income tax on enterprises and citizens is introduced. The amount of income tax on enterprises is the same for all enterprises and is independent of the form of property or subordination and on citizens, depends on the economic organization in which they work. As a rule, income tax rates are progressive.

4.3. Banking and Monetary Circulation

4.3.1. A two-stage bank system operates in economically accountable Estonia. The Bank of Estonia is the managing body and commercial banks service the national economy. The Bank of Estonia manages the operation of commercial banks.

4.3.2. The Bank of Estonia jointly with the Estonian SSR Ministry of Finance determines the procedure of issue of permits for the activity of commercial banks and the normatives of activity of these banks, which are:

—the maximum correlation of internal funds and obligations;

—the indicator of balance liquidity;

—minimal requirements for the reserve;

—the maximum amount of credit granted to one recipient.

4.3.3. The Bank of Estonia participates in national economic management by determining the maximum interest on deposits and credits.

4.3.4. Commercial banks are independent in their activity and operate on the basis of economic accountability. They grant credits and accept deposits in accordance with existing economic interests on the basis of a charge for operational services and interest rates.

4.3.5. As a rule, the principle of currency recovery is applied with respect to economic organizations. In the interest of the republic as a social and economic whole a part of the currency proceeds of economic organizations (the currency fund) is centralized in republic and local budgets by means of the so-called forced currency sale with the use of the currency rate.

4.3.6. The Estonian SSR Government has the right to put securities (bonds, lottery tickets, and so forth) in circulation.

4.3.7. The Estonian SSR Government protects the bank deposits of inhabitants. Both deposits and ready cash available to the population are exchanged for the new money in the same ratio.

4.4. Wages and Pensions

4.4.1. An increase in the value of more highly skilled labor and education is the basis for the wage policy. Wages should depend on the results of labor of every worker. The differentiation of salaries will increase significantly.

4.4.2. During the transition to economic accountability a radical wage reform will be carried out. The inequality in the wage level between workers in the production and so-called nonproduction sphere will be reduced significantly at the first stage of this reform and will be liquidated subsequently. A rise in the wage level of cultural workers will begin without delay and the present stage in the reform in wages of medical and other workers in the so-called nonproduction sphere will be completed. The further wage regulation depends on the income of the republic's national economy.

4.4.3. The Estonian SSR Supreme Soviet establishes the minimum amount of hourly wages, proceeding from the need to ensure living wages for every worker.

4.4.4. The republic government approves wage scales only for institutions and organizations maintained at the expense of the budget.

4.4.5. Trade-unions protect workers' interests. To coordinate the interests of employers and executors, when necessary, appropriate organizations based on interests are established.

4.4.6. The basic pension paid to all pensioners ensures living wages. The remaining part of the pension (additional pension) depends on the length of service, previous wage level, national economic importance of work, and other factors.

4.5. Price System

4.5.1. On the republic market prices are formed basically in accordance with socially necessary production expenditures and supply and demand relations. The competition among producers is an active factor in price formation.

4.5.2. Basically, the following prices are used on the domestic market of the Estonian SSR:

—fixed prices;

—maximum prices;

—free (contractual) prices.

4.5.3. Estonian SSR state bodies determine the price use sphere. Fixed and maximum prices are applied primarily to basic food products for the purpose of preventing a price rise and a possible reduction in the standard of living.

Implementation of a price policy protecting the interests of inhabitants and promoting the most rapid development of the national economy is the task of the republic government.

4.6. Independence of Local Soviets

4.6.1. The economic activity of internal regions (rayons and cities of republic subordination) of economically accountable Estonia is organized on the basis of principles of economic accountability. The organization of work of administrative units within the jurisdiction of rayons and cities of republic subordination with the use of principles of economic accountability is within the competence of the latter.

Proceeding from uniform principles of intrarepublic regional economic accountability, in various administrative units it is advisable to use its models slightly differing from each other, having in mind ensuring the selection of the most efficient ways of solving individual problems.

4.6.2. Estonian SSR laws concerning local soviets transfer housing and municipal services, domestic services, local transport, construction of roads of local significance and their maintenance, public dining, and other spheres of management of local significance to the exclusive competence of local soviets of rayons and cities of republic subordination. Simultaneously with granting local soviets the right to be the masters of subordinate territory, the responsibility of local soviets also increases.

The establishment of people's self-management bodies and the entire political democratization are the prerequisites for the fact that the replacement of sectorial

management with regional management will not lead to the transfer of bureaucratism from the level of appropriate central institutions to the level of local soviets.

4.6.3. As a rule, at the level of every administrative unit all expenditures are covered by internal income. Every local soviet has an independent budget, which is not included in a superior budget. Only the local soviet has the right to approve its own budget.

Certain types of revenues, which can include the income tax on the population, the land tax, and the tax on natural resources and on manpower, are assigned to local soviets.

A subsidy for financing certain goal-oriented programs can be allocated from the republic budget to local soviets.

4.6.4. Local soviets have the right to differentiate within the limits stipulated by law tax rates, wage rates, and prices of services. Local soviets have the right to establish local taxes, use bank credits, make loans from other local soviets, and utilize other additional sources of drawing in resources (local lotteries, loans, donations, and so forth).

Local soviets are permitted to establish funds for specific purposes.

Local soviets are complete masters of their monetary assets.

Local soviets have the right to use their monetary assets for the construction of projects for social and cultural purposes, maintenance of budget institutions subordinate to them, and payment of wages to the workers of these institutions (including schools, hospitals, cultural institutions, and so forth).

4.6.5. Local soviets ensure the overall social development of subordinate territories. On the basis of commodity-money relationships and in accordance with local conditions local soviets have the right to form an efficient structure of the production and service sphere. In accordance with the unified republic economic policy a diversity of forms of property and organizational structures is ensured in rayons and cities of republic subordination.

4.6.6. The construction of all building projects is included in construction plans only with the consent of the appropriate local soviet. Local soviets determine the order and place of construction of projects of the social infrastructure. During the period of transition to regional economic accountability the local soviet distributes all state and cooperative housing.

4.6.7. Local soviets have the right to set manpower limits for enterprises, to control their execution, and, if they are not executed, to apply sanctions—from fines to the closure of enterprises.

Local soviets must ensure the population's employment and organize the training and retraining of manpower.

4.6.8. Local soviets have the right to develop foreign economic relations and to have and use foreign currency.

4.6.9. The main responsibility for the condition of the environment on the subordinate territory is placed on local soviets. To ensure environmental protection, local soviets have the right to apply administrative (right up to the closure of enterprises) and economic sanctions.

Interrayon tasks in the area of environmental protection are accomplished through republic goal-oriented programs and appropriate financing.

4.6.10. Local soviets in accordance with the procedure established by Estonian SSR legislation determine the administrative division of their territory. Cities of republic subordination and rayons (or uyezds) become the basic links of intrarepublic regional economic accountability and cities of rayon subordination, settlements, and rural soviets (or volosts), lower level links.

5. Basic Directions in Social and Economic Development in Economically Accountable Estonia

5.1. Basic Directions in Social Policy

5.1.1. The Estonian SSR conducts an independent social policy in the field of education, public health, social insurance, culture, and other areas of the social sphere. Over a long-term period it provides funds allocated for the social sphere together with the necessary material coverage (in percent of the national income according to the international method): up to 8, instead of the present 3, percent on education; up to 10, instead of 5, percent on public health; 5, instead of 2, percent on demographic and family policy.

5.1.2. Housing construction and services are transferred to economic accountability. A system of crediting and privileges for the purchase of dwelling houses (or their parts) is created. The population's income increases at the expense of the monetary assets freed from state housing construction.

5.1.3. A unified, independent, and self-regulating school system, in the center of which there is the individual, is established in the Estonian SSR. A differentiation in education depending on students' abilities and wishes, as well as the needs of the national economy, is ensured.

5.1.4. A unified state system of public health with a territorial division is established in the Estonian SSR. The institution of family physicians is being introduced.

Economically healthy people are provided with allowances due to sickness, additional pay, additional leaves, flexible social insurance, creation of extensive opportunities for health improving sports activities, and so forth.

5.1.5. Rehabilitation of disabled persons and their care and involvement in public life in accordance with their capabilities are ensured at a state level.

5.1.6. Domestic training and care of children are materially supported by allowances, privileges, flexible forms of employment, and so forth.

5.1.6.1. A republic family fund is created, from which, in accordance with the law on citizenship, monthly allowances for children are paid on a differentiated basis, depending on the number of children in a family, until they attain full legal age.

5.1.6.2. Monthly allowances are paid to badly-off families with many children.

5.1.6.3. During the first years of a child's life a child care allowance is paid to the mother or, optionally, to another family member. A child care leave is extended up to 3 years.

5.1.6.4. A diverse and flexible network of preschool children's institutions consisting of various types of children's institutions is being established.

5.1.7. Young families and students at higher and secondary specialized educational institutions are given the opportunity for a long-term credit for young people with its partial liquidation as children are born.

5.1.8. The regulation of the population's migration in the Estonian SSR is fully within the competence of every local soviet in the republic. The population's migration is regulated by the regional personnel policy, network of educational institutions, language of instruction, introduction of flexible forms of employment, establishment of a registration regime, regulation of the purchase and sale of private housing, and other economic and administrative sanctions.

5.1.9. Estonia contributes to the satisfaction of cultural and educational needs of the nonindigenous population, right up to the creation of cultural autonomies at the wish of national groups.

5.2. Science and Culture in Economically Accountable Estonia

5.2.1. In economically accountable Estonia science develops in the directions that have already attained international recognition (basic research), whose scientific output is competitive on the international market, which makes it possible to develop in the Estonian SSR highly technological production, as well as in the area of national sciences.

5.2.2. In social sciences, first of all, it is necessary to create a system of a constant sociological analysis of society and to form a modern information infrastructure. During the period of introduction of economic accountability in the Estonian SSR preference is given to economic science.

5.2.3. In the development of natural sciences special attention is paid to Estonia's nature, its investigation and protection, natural resources, and ways of their intelligent use.

5.2.4. Academic, higher educational institution, and sectorial science is linked into a single complex. Research directions, which have become hopeless, or which have no prospects for producing scientific output at the highest world level, are terminated. The Academy of Sciences is deprived of the function of managing scientific institutions.

5.2.5. For closer contacts with world science and culture Tallinn and Tartu are transformed into international centers of scientific and cultural contacts and exchange of information. Many-sided international relations among Estonia's scientists and cultural figures, including in the area of personnel training, are maintained.

5.2.6. The creation of conditions and freedom for the development of Estonia's culture as a unified and special part of world culture is the basis for Estonia's cultural development. The study of Estonia's history and culture is intensifying. Foreign Estonians are also enlisted in the development of national science.

5.2.7. In the cause of providing the material base for the development of Estonia's culture principal attention is paid to the creation of a modern polygraphic industry and of sound- and video-recording opportunities and to an accelerated development of art-intensive production.

5.2.8. Along with central projects for national culture city and rayon cultural complexes will be developed and conditions for the development of culture in rural areas will be created.

5.3. Environmental Protection and Efficient Utilization of Natural Resources

5.3.1. The Estonian SSR provides for citizens, as the basic constitutional right, the right to a healthy living environment (ensuring health and preserving the self-restoring capacity of natural systems).

5.3.2. Basic criteria of management of the Estonian SSR national economy include the following:

5.3.2.1. Quality of the environment.

5.3.2.2. State of health of the population.

5.3.3. The priority of territorial management over departmental management is established in matters concerning the protection and use of nature. The development of common goals and strategies, as well as the subsequent stimulation of their attainment and observance, management of state nature protection zones and facilities, direction and stimulation of regional nature protection bodies, and implementation of a nature protecting and natural resource-saving policy at the level of general management of the republic's economy remain within the competence of the republic central body for the management of nature protection.

5.4. Basic Directions in Development of Industry

The realization of the social program of economically accountable Estonia largely depends on the efficiency of development of industry as the basic sector of the republic's national economy.

5.4.1. Science-intensive production based on the highest technologies, the constant rise in its significance being ensured by the scientific potential of the Estonian SSR, is an important factor in a stable development of the Estonian SSR industry.

5.4.2. Power engineering should ensure primarily the supply of electric and thermal power for the republic, as well as an economically profitable sale of power outside the republic. An expansion of power production for sale purposes is possible only under conditions of observance of the requirements for nature protection and the optimum use of land and mineral resources. Ecological safety is the most important limiter of the development of power engineering.

5.4.3. Machine building and instrument making develop on the basis of the highest science-intensive technologies and low-efficiency production based on obsolete technology is eliminated. In instrument making the scientific potential is realized in the area of laser technology, chromatography, informatics, automatics, computer technology, and electronics.

5.4.4. Observance of the requirements for nature protection and the optimum utilization of mineral resources are ensured in the chemical industry. In order to ensure a quality of life for the people, production processes, which do damage to the environment and directly to workers' health, as well as wastefully utilize natural resources, are eliminated.

5.4.5. The building materials industry is being retooled completely. Through a rise in the standard of labor and an improvement in the quality of products conditions are created for taking the sector out of the crisis state. The building materials industry ensures the satisfaction of the needs of the republic's population and the national economy for quality building materials.

5.4.6. An intensive development of forestry and the manufacture of quality products on the basis of an overall utilization of local timber resources, which the republic's national economy and the population need, are the basic directions in the development of the Estonian SSR timber complex.

5.4.7. In the development of light and food industries principal attention is paid to the diversity of the assortment and improvement in the quality of products and to the attainment of competitiveness on the world market.

5.5 Directions in Development of Estonia's Agriculture

5.5.1. Agriculture should ensure the supply of Estonia's population with agricultural raw materials and provide the resources necessary for commodity exchange with other regions on the basis of equivalence and a mutual benefit.

The development of agriculture should ensure a steady improvement in the living and working conditions of rural workers on the basis of growth of labor productivity and production profitability. At the same time, an improvement in the quality of output in accordance with the requirements of the world level (including the development of conservation farming), a reduction of losses, and a careful utilization of natural resources with an all-around activation of the workers' spiritual potential are the priority directions in development.

5.5.2. The Estonian SSR Supreme Soviet establishes a procedure of utilization of all the natural resources of the Estonian SSR, including land and reservoirs.

5.5.2.1. The right of land use can be long-standing, for an indefinite period, or for a fixed period.

5.5.2.2. When the procedure of use of reservoirs and coastal waters is established, it is envisaged that the activity of USSR fishing organizations and foreign fishermen in the reservoirs of the Estonian SSR and coastal waters is permitted only in exceptional cases and on the basis of an appropriate compensation agreement.

6.5.3. The internal mobility and capacity of agriculture and the entire agro-industrial complex for development and adaptation are ensured through an organizational diversity. An expansion of individual land use is envisaged.

5.5.4. The management of Estonia's agro-industrial complex is being reorganized. Super-bureaucratized centralist forms of management (administration) will disappear and the functions of a planned coordination of the economic activity of enterprises will be transferred basically to voluntary associations of enterprises and organizations.

5.5.5. The Estonian SSR Government establishes an efficient system of control over the quality of food products, ensures a full openness of control results, and takes effective measures to stop the production of products not meeting quality requirements.

5.5.6. For the purpose of improving the quality of life of the rural population, the prerequisites for a harmonious development of all rural regions are created and the prestige of rural life and rural labor rises. At the same time, ensuring a clean habitat—nature, air, soil, and reservoirs—for the rural population, the capacity of the agricultural landscape for self-restoration, and efficient nature utilization—is a task of special importance.

5.5.7. The economically accountable mechanism of economically accountable Estonia ensures an equivalent exchange between urban and rural areas.

The authors of the published theses of the concept for the republic's economic accountability await opinions, critical remarks, and suggestions from readers. All the opinions and suggestions received before 24 October of this year will be taken into consideration during the development of the concept's final version. Changes and supplements will be published.

By 1 November of this year the working group at the Institute of Economics of the ESSR Academy of Sciences will submit the work formulated in the form of theses to the client—the ESSR Council of Ministers. This will be followed by a discussion of this concept together with the concepts and suggestions submitted to the government by other scientific research collectives. Probably, the Estonian SSR Government will present its final position on Estonia's transfer to economic accountability for decision making and the development of appropriate legislative acts to the Estonian SSR Supreme Soviet.

11439

Uzbek 'Mafia' Involved in Shadow Economy

18200040a Moscow *EKONOMICHESKAYA GAZETA*
in Russian No 36, Sep 88 pp 20-21

[Interview with Grigoriy Karpovich Sinilov, chief of laboratory on problems of protection of socialist property at USSR MVD All-Union Research Institute; interview conducted by *EKONOMICHESKAYA GAZETA* correspondent S. Yurakov: "Calculators and Brass Knuckles: The Mafia Against the Cooperatives/Racketeering in the Capital/A Conspiracy of Silence Among the Victims"]

[Text] Our state loses billions of rubles to the phenomenon known as the "shadow economy."

G. Sinilov, chief of the laboratory on problems of protection of socialist property at the USSR MVD All-Union Research Institute, is one of our country's leading experts on the struggle against economic crime. In 1978 his research helped him, using the economic-legal analysis method, to expose tremendous padding of accounts in Uzbekistan; this discovery later became the basis for a whole "bouquet" of crimes widely publicized as the "Cotton Affair."

[Yurakov] Grigoriy Karpovich, we know that during the years of stagnation account-padding, bribery, embezzlement, speculation and outright theft became tremendously widespread. This was an obvious manifestation of a blending of the greedy ambitions of both officials and criminal elements; this commonality of interests allowed them to divert fabulous sums from the economy. How was that possible?

[Sinilov] The consumption-oriented atmosphere and acquisitiveness prevailing in society at that time facilitated the spread of the "shadow economy." This is confirmed by a tendency observed during the years of stagnation for the share of financial crimes as a percentage of total crime to rise. For example, in Moscow such crimes accounted for 60 percent of the entire volume of criminal cases.

The "shadow economy," by which we mean economic relations outside of the predominant official system, is fertile soil for obtaining an excessively large criminal income with a relatively low degree of risk. It was for that reason that criminally inclined individuals hurried to get into this field, trading in their brass knuckles for calculators. As a result there occurred an unprecedented intertwining of the crime world with the "main characters" of economic crimes.

For example, during investigation of the now famous "Cotton Affair" in Uzbekistan we came across a paradoxical situation: according to the records an ever greater amount of cotton was being harvested, yet the amount of finished goods produced per ton of cotton was decreasing. We found out that a huge amount of raw cotton fiber was being written off as waste material. This reached 15 percent of the total cotton harvest, as compared to an industry standard of six percent. Everything was justified by citing the very poor condition of the fiber. But it turned out that this was the "method" used to make ends meet after accounts had been distorted and socialist property embezzled on a particularly large scale. When we conducted an analysis in conjunction with economists we established the scale of account padding at almost one million tons, and this was later confirmed. Obviously the huge amounts received through account-padding ended up in the hands of criminals.

[Yurakov] How has this situation changed recently as a result of the creation of a legal model for a new economic mechanism and the adoption of these new laws: on state enterprises, on cooperatives, on individual labor activity and on the struggle against unearned income?

[Sinilov] This series of new laws is aimed at changing attitudes toward socialist property by combining the interests of the state, the collective and the individual.

Favorable changes in the public consciousness in connection with restructuring and glasnost as well as expanded practical application of the law over the past three years of the struggle against corruption and organized crime in Moscow, Rostov-on-the-Don, the Ukraine and Uzbekistan have allowed us to achieve, beginning in 1987, a reduction in the level of crime in the economy. True, it has only been a very insignificant reduction, and it is too soon to congratulate ourselves. According to expert estimates a huge number of people are still involved in the "shadow economy" and the value of the services performed by that economy and not recorded by the state is approximately 14-16 billion rubles annually.

Furthermore, recently we have observed an increase in speculation, and on a major scale involving several trade workers in the criminal operations. This rise in speculation is particularly noticeable against a backdrop of reduced imports: there are no imported goods in the stores, yet there is quite a wide selection of them at flea markets.

One effective means of combatting many forms of the "shadow economy" is, in my opinion, all-round development of the cooperative movement and individual labor activity oriented toward production of the scarcest items and the provision of services to the public. The social significance of the cooperative movement lies in the fact that it allows us to legalize many types of economic practices which were previously unjustly condemned; this was fertile soil for lawbreaking and receipt of illegal income.

Take, for instance, "private hauling," the use of state vehicles by drivers for personal profit by providing transport services to the public. In 1986 laws were passed establishing administrative and criminal penalties for this. But that has not stopped this activity, because in this country there is a substantial unsatisfied demand for transport services. And state transportation is still being used to make money on the same scale, except now the drivers charge more—on account of the risk.

But in Kuybyshev Oblast and the Belorussian SSR they have realized that bans are useless in this matter. The drivers of state trucks have now been permitted to haul loads for the public if the trip is on their way, recording these services in their logbooks and accepting payment from the client, a portion of this money going to the state. In this way reasonable economic organizational measures have helped resolve the transportation problem and carry on a successful struggle against one of the most massive sources of illegal income.

Yet we can also see some negative processes accompanying the development of cooperatives and individual labor activity. We have witnessed a flurry of new types of violations of the law as a result of the development of the cooperative movement. I would like to mention two of them. Firstly, the so-called "laundering" of money, i.e., legalization of illegally earned funds through investment in cooperative property. Secondly, extortion or, as it is currently fashionable to call it, the "racket" [reket]. I could also mention receipt of surplus value, receipt of income not in accordance with the quantity and quality of labor performed, and receipt of unearned income.

To a certain extent these criminal phenomena are linked both to vagueness in legislation and to indecisiveness and a certain confusion on the part of law enforcement organs when they encounter new types of crime. Currently one of the most important tasks of both economic and law enforcement organs is to protect the cooperative movement from criminal erosion. I will explain what I mean by that.

The cooperative movement, as you are aware, should be aimed at providing more goods and services to the public and weakening the monopolies held by certain state enterprises on various types of goods and services. But we often find cooperatives which are more interested in making exorbitant profits. And I should add that they are doing so quite successfully by exploiting the vagueness of the law.

For example, we have a situation in which there is a lack of legal definition with regard to cooperatives which purchase large shipments of goods like Pepsi-Cola, ice cream and candy from the state trade system and then resell them at double or triple their original price without putting any labor into their improvement or processing except for transportation. Essentially this is typical speculation. But in this case law enforcement organs cannot convict those involved because of an ambiguous interpretation of the law. Despite the fact that we obviously have a case in which direct economic harm is being done: augmentation of goods with no improvement in their quality, yet large sums of money are taken from the public and concentrated, bypassing the state, in the hands of a few individuals with very little labor input.

In the Law on Cooperatives, for instance, there is no quantitative limitation on the employment of individuals in a cooperative on the basis of labor contracts. The facts show that employment of an excessively large number of people (under contract, or worse yet without one) gives the "initiators" who founded the cooperative an opportunity to make an unjustifiably large income. It should be noted that in other socialist countries which are ahead of us in the development of new forms of economic activity such a limitation has been established. In Hungary, for example, the number of hired workers may not exceed 20.

It is no secret that among cooperative workers there are also those who by exploiting the situation attempt to legalize their illegally earned money. For example, this is attested to by the fact that, despite the right and opportunity to take out loans, many cooperatives do not accept state loans for the establishment of a cooperative or for its operating expenses. The danger of allowing ill-gotten gains to be "laundered" in cooperatives is quite obvious. This opportunity could encourage the development of crime and its evolution into its most refined, organized forms.

[Yurakov] Our newspaper will soon inform its readers about the "laundering" mechanism using specific examples, yet despite what you have said, we really cannot accuse all cooperatives of greed or a criminal orientation, can we? It is a well-known fact that the overwhelming majority of cooperative members are filled with a desire to serve society to the extent of their knowledge, skills, entrepreneurial skill and ability. Furthermore, as is clear from several articles in the press, members of cooperatives are currently being subjected to great pressure by organized crime.

[Sinilov] It is true that many cooperatives are suffering from cruel extortion by criminals. An inspection in Moscow's Krasnopresnenskiy Rayon showed that many of the cooperatives registered there were paying "tribute" in one form or another. I think that this practice can be found in other rayons as well. Yet in spite of this the city's militia organs have received only three complaints from victims of extortion.

What is behind this conspiracy of silence? The case of one cooperative member in suburban Moscow is a good illustration. He went to the police with a complaint that a large sum of money had been extorted from him. As proof the cooperative member showed the marks of torture: clear marks left on his back by a hot iron. Yet the next day he withdrew his complaint, obviously intimidated by a threat, stating that he was not responsible for his action at the time he signed the statement and that he had burned himself accidentally when he fell on a hot iron while drunk.

This is a typical case of legal nihilism. Many cooperative members are not aware that current legislation, in particular Article 95 of the RSFSR Criminal Code, provides for criminal penalties in cases of extortion, which is punishable by prison sentences of up to four years.

The extortionists are extremely insolent because public opinion at the level of the man on the street still quite often harbors negative overtones with regard to cooperatives.

Party and state resolutions and the Law on Cooperatives declare that the cooperative sector of the economy has rights equal to those of the state sector and refer to the great social prestige of cooperative workers' labor, but in practice we nevertheless often find a biased attitude

toward cooperatives, in some case on the part of state agencies. We need only recall the infamous progressive tax scale, which had to be repealed. Or another example: in 1981 price coefficients were established at our suggestion in order to establish the sum of compensation for losses resulting from theft. It would be naive to establish a compensatory sum equal to an item's retail price: that would never deter people from stealing.

These coefficients were intended to have a preventive effect and deter crime. In other words, their objective was to make theft unprofitable, just as in the case of riding public transportation without a ticket, in which case the fine is much greater than the fare, or like the case of theft of a book from a library, where, as you are aware, the thief must pay seven times the cost of the stolen book.

Yet just recently we saw the wholesale price coefficients established by the USSR State Committee on Prices; these are to be used when state organizations sell materials and goods to cooperatives. They turned out to be absolutely identical to the coefficients used for compensation of damages from pilfering and theft.

This "coincidence" leads one to think that some employees of state agencies see no major difference between cooperatives and thieves of socialist property.

[Question] Obviously that approach hampers the development of the cooperative movement and exacerbates the already quite alarming situation with regard to the causes and effects of the "shadow economy." And they are quite diverse, as we can see. How do we combat them?

Experience shows that legal measures aimed particularly at unearned income are highly effective in eradicating the "shadow economy." But these measures must correspond to present-day conditions. In terms of the concept of a state governed by law as developed by the party, which does reject deny either bans or punitive measures, we must put greater emphasis on crime prevention.

Our research shows that the overwhelming majority of persons committing large and exceptionally large thefts, 94 percent to be exact, are first-time offenders. That means that our preventive measures are not working. Therefore, in our opinion, today we need to draft and pass a law on crime prevention and a law on the protection of socialist property, and we also should increase the extent of public participation in monitoring compliance with the law.

If we accept protection of socialist property as a function of the state and hence a comprehensive function, then it follows that property should be protected first and foremost by the producers themselves. Yet many people are of the opinion that this is solely the militia's job.

The CPSU Program (new redaction) refers to the duty of all social structures to participate in crime prevention. Party, soviet and economic organs must finally become fully aware of their need to make a contribution to this work.

Crime prevention requires not only legal but also social influence through a broad spectrum of measures and methods which the state has at its disposal. And therefore the utilization of organizational and economic measures is of great significance in this respect.

We have studied 500 criminal cases from 1982-83 involving large and exceptionally large thefts and we have found that in 96 percent of those cases the primary cause of the crime was either lack of accounting, faulty accounting or improper distribution of goods.

Yet many departments have automated management systems with powerful computer technology. But do those systems contain data concerning record keeping and movement of goods at all stages of the technical chain? No. And accounting, just like in olden times, is still done with pencil in hand.

It is time to start taking negative economic phenomena into account in planning, time to monitor more strictly the execution of tasks pertaining to reduction of losses in the economy, which are fertile soil for a large number of crimes.

[Yurakov] Grigoriy Karpovich, as we can see administrative and non-economic methods of combatting the various manifestations of the "shadow economy" are not particularly successful. Measures of an economic nature would probably be preferable. What does science have to say in this regard?

[Sinilov] Criminology, which analyzes the causes of crime in the economic realm, should be a science not so much for law enforcement organs as for economic administrative organs, so that effective measures can be taken in a timely manner.

Yet not a single economic research institution is studying these problems. So far, despite the widespread presence of the "shadow economy," our country has no scientific organizations to study this social phenomenon as a whole, although the need for such study is evident.

Perhaps it would be advisable to set up special structural subdepartments within the USSR MVD or USSR Gosplan, within union republic and economic regions; these departments would carry out comprehensive economic and legal research on this problem at the local level and would come up with recommendations that would take regional specificity into account.

It would be quite possible for these subdepartments to function not only with state financing, but also on a contractual cost-accounting basis, since even their individual studies could yield quite a large economic effect.

For example, we once studied the theft of imported powdered milk at dairy plants. What we found was an interesting situation: there was obviously pilfering going on, yet there was no decrease in production quantity or quality. The explanation for this was a "mistake" in the calculation of the coefficient used for the amount of liquid milk which each unit of powdered milk should produce. It turned out that the fat content of our domestic powdered milk was being used in the calculation, despite the fact that it was much lower than that of the imported powdered milk. This allowed powder to be stolen while keeping the fat level in the liquid milk produced at the requisite level.

This one study made it possible to prevent thefts totaling 250 million rubles in Moscow alone, and for enterprises to receive additional profits equal to that amount by increasing their production of milk from powdered milk.

Thus I feel that the science that studies the "shadow economy" has more than paid for its keep by producing a substantial economic, moral and political effect.

CIVIL AVIATION

Fate of Tu-144 Supersonic Airliner Examined *18290012 Moscow KRASNAYA ZVEZDA in Russian* *1 Oct 88 p 3*

[Article by Colonel General of Aviation Yu. Mamsurov, reserve, winner of the USSR State Prize: "The Aborted Flight: Why Did the Tu-144 Supersonic Airliner Leave the Airways?"]

[Text] Many people are asking this question. There are several versions: some refer to design errors, others mention the tragedy over Le Bourget in 1973, and others refer to the unprofitability of this type of aircraft...

There were many disputes about the Concorde at one time. The opponents of supersonic passenger aircraft fought to ban their flights, and there were strong demands that the airports in many countries be closed to them. Opinions of this sort more often came from amateurs than from those who had thoroughly examined the problems, both technical and ecological in nature.

Before attempting to answer the question "Why?" I would like to quote a brief statement which appeared recently in one of the Japanese newspapers:

"Any Japanese resident will be able to reduce the flying time to the United States from 12 hours to 3 to 4 hours at the end of this century. The plan to build a new supersonic passenger aircraft promises such a prospect. Japan's Ministry of International Trade and Industry will begin carrying it out next year. It is planned to develop the engine for such an aircraft over the next 7 years through the efforts of the main Japanese aircraft manufacturers. At the same time, more than 20 companies will conduct a search for ceramic materials to be used for the fuselage, which will be capable of withstanding temperatures of over 500 degrees Celsius. The total cost of these operations is estimated at 42 billion yen."

The Japanese are a prudent people. They approach technical innovations carefully and study international experience thoroughly; they are not sparing in the purchase of licenses, and in beginning important work they clearly set forth the benefits they expect.

The development of aviation has always been defined by the increase in speed, altitude and range. Designers throughout the world have struggled tirelessly for these indicators. And although success has varied, the leaders have always remained leaders. It is no exaggeration to say that the design bureau headed for many years by Andrey Nikolayevich Tupolev has held a special place among aircraft manufacturers.

In the late 1960's, aviation specialists in the world's leading countries were engrossed with the problem of building a supersonic passenger aircraft. The Americans

had their conceptions and the British and French manufacturers combined their efforts to develop the Concorde. The Tupolev collective conceived and built its "144." There was a competition in ideas and design solutions, and each one sought to be first in this competition.

It is common knowledge that when foreign specialists asked A. N. Tupolev when our "144" would fly, Andrey Nikolayevich jokingly replied: "Two months before the Concorde."

Many probably recall the last day of 1968 when the world was shaken by the sensational announcement: "The Tu-144 has made its first flight. The flight was successful. The ultramodern airliner has a speed of 2,500 kilometers per hour and a range of 6,500 kilometers." It was stated further that the comfortable aircraft can carry 121 passengers from Moscow to Colombo in just 3.5 hours. Soon after, the Federation Aeronautique Internationale marked this achievement with a special certificate.

The first flight, being experimental in nature, naturally brought to light a number of characteristics which had to be taken into account before regular flights were begun. The problems which arose required time, coordination, training of ground and flight services, and the solution of organizational and technical questions.

Passenger flights in the Tu-144 were begun in the fall of 1977 on the Moscow to Alma-Ata route, a distance of 3,260 kilometers. Flights were made once weekly, on Thursdays. The aircraft returned to the capital from Alma-Ata on the same day. A one-way flight took about 2 hours.

But not everything went smoothly. The Aeroflot management evaluated the aircraft's operation soberly, and design refinements related to increased flight safety were required. Departmental barriers were impeding the solution of problems. And soon afterward, the Tu-144 flights were dropped from the schedule.

Many questions arise. Time does not remove them from the agenda, especially as this involves our aviation prestige.

What did the supersonic passenger airliner mean for us, and indeed, for world aircraft manufacturing as well?

The lines of the Tu-144, which flew at speeds in excess of twice the speed of sound, were graceful and stirring. However, owing to an original technical solution—installation of a small canard wing—its speed in the airport traffic zone and its approach speed did not exceed the speeds of modern subsonic jet passenger airliners. Materials and engineering solutions which were utilized in the aircraft's design have proved themselves in operation. The extensive experience of the Tupolev Experimental Design Bureau in developing

many types of aircraft made it possible to expect high reliability from the aircraft. In addition, the lengthy bench testing of the aircraft's basic systems and structures were a guarantee of that reliability.

Our aircraft industry also has sufficient experience. Modern technologies were used in the production of the Tu-144; machine tools with programmed control and automated control methods were widely used, which ensured that the aircraft's performance would be stable.

The on-board complex of electronic equipment made it possible to fly under instrument flight rules with precise adherence to schedules on both domestic and international routes.

And one more important factor. The Tu-144 could operate from airports designed for subsonic jet aircraft, using existing servicing facilities.

The Tu-144 was forced to abort its flight. The aircraft that look like huge eagles turned out to be beyond the pale of our aviation life. It is a sad fate for these aircraft. Several aircraft have become exhibits in aviation museums, and one is used as a laboratory. The rest (only a about a dozen and a half were produced) have been stored at one of the airports outside Moscow. It looks as if they will never get into the sky.

Perhaps that is how it should be? There are many cases in the history of science and technology when what appears as a tempting experiment at first glance turns out to be a failure. Any technical solution should be evaluated by economic criteria as well. Will such a complex and expensive aircraft pay for itself? Does Aeroflot need it? After all, our other long-range airliners are coping completely with flights from Moscow to the Far East, let us say. But if this is calculated more closely and the well-known saying "Time is money" is taken into account, it will become clear that a flight from the country's most remote areas (from Kamchatka, Sakhalin, Vladivostok, and so forth) to Moscow, Leningrad and our western and southern republics takes just 2 hours. If it is taken into account that our aircraft also are flying on long-distance international routes, the result will be completely satisfactory.

The Soviet Union is a great power in aviation. We have all the capabilities to make the best aircraft in the world. And this is not conceit or boasting. This is common knowledge to our specialists as well as to the Americans, the British, the Germans, the French... We need only the highest quality of business organization and talented, courageous leaders of design collectives such as S. P. Korolev, A. N. Tupolev, S. V. Ilyushin and V. M. Myasishchev...

Incidentally, Vladimir Mikhaylovich Myasishchev, the developer of the first supersonic missile-carrier, the M-50, made a thorough analysis as far back as the 1950's and substantiated the possibility of building a 100-seat

supersonic passenger aircraft with a range of 7,000 kilometers. The experimental design bureau which he headed worked out the scientific problems related to aerodynamics, technologies, navigation instrument making, engine manufacturing, and so forth. Myasishchev showed that building a long-range supersonic aircraft with a speed of Mach 1.8 to Mach 2 was inconceivable without engines of minimum size, greater specific thrust, and fuel consumption under cruise conditions of no more than 1.16 kilogram of thrust per hour.

The supersonic Concorde, built many years afterward, fully corroborated the correctness of the analysis, conclusions and practical recommendations made by the noted Soviet designer.

Aircraft have a long life ahead. The development of aviation, both military and civilian, will depend to a significant extent on how the performance characteristics which have always been of predominant importance will be improved. However, factors such as the cost and reserves of fuel and environmental protection, which were taken into account much less before, assume more importance in aviation experimental design work now. Perhaps our Tu-144 did not "blend" with these demands of the time?

There is probably another reason, anyway. The approach to the solution of scientific and technical problems. Today a vast scientific potential has been accumulated which should be utilized to the maximum extent in short periods of time to become a direct lever for an upsurge in the economy. For this reason, the old forms and methods of organizing design work must be boldly restructured and substantiated in the spirit of the requirements set forth in recent party documents.

Scientific truth has carved its way at all times—but how tortuous this path was in the past! It appears that this is what happened with the Tu-144.

8936

An-74 Transport Aircraft Highlighted

18290007 Moscow GRAZHDANSKAYA AVIATSIYA in Russian No 6, Jun 88 pp 21-28

[Article by M.M. Kirillin, one of the designers of the An-74: "The Air Pilot of the Arctic"; first paragraph is editorial introduction]

[Text] The An-74 transport aircraft was built by the collective of designers of the OKB [Experimental Design Bureau] imeni O. K. Antonov. The new aircraft is basically designed to carry cargoes and carry out different operations in organizing polar scientific drifting stations, to support scientific research operations in the Arctic and Antarctic, and to conduct ice reconnaissance and guide oceangoing vessels. The aircraft has been checked out in the mountains, in severe cold and in the Central Asian heat. It has proved itself in the best

possible way in the skies of Turkmenia and Yakutia, Chukotka and Tajikistan. It has been to Franz Josef Land and the Commander Islands. During the Soviet-Canadian crossing of the North Pole on skis, the An-74 was used to provide the group with vitally important cargoes. Today one of the new aircraft's designers, M. M. Kirillin, tell's the journal's readers about it.

Design Details

Development of the An-74 aircraft was dictated by the need to improve the work of aviators at high latitudes, increase the pace and volume of national economic goods transported, and raise the service to polar regions to a new level of quality. The aircraft was developed on the basis of the first jet designed by the OKB imeni O. K. Antonov, the An-72. The most up-to-date computer hardware was used in the process of planning, building and refining the An-74, as with all the other "An's," incidentally. This helped in optimizing and selecting the aircraft's basic parameters, calculating the aerodynamic characteristics and performance, analyzing the strength of complex structures by the finite element method, geometric modeling and calculating the surfaces of the aircraft's basic assemblies. Programs to analyze the flight performance, develop a durability experiment, and process the results of flight tests were worked out and applied successfully. The most important aircraft systems were developed and refined on ground-based test stands and complexes with modeling of actual operating conditions.

The configuration of the engines, the efficient high-lift devices, and the increased thrust-to-weight ratio make it possible to operate the aircraft at unimproved airfields and those with limited area. The original design of the landing gear struts, combined with low-pressure tires, enable the aircraft to operate reliably on wet earth, gravel, ice and snow-covered airfields, including those in mountainous areas.

The aircraft is simple and convenient to handle. The cockpit meets the requirements of modern ergonomics and provides the crew with a good field of vision. There are four crew members: the aircraft commander, copilot, navigator, and flight mechanic. The radio, navigation, and flight control equipment make it possible for the aircraft to be flown at all latitudes, night or day, under visual or instrument flight rules, and outside of equipped airways.

The An-74 is one of the first aircraft designed by the OKB imeni O. K. Antonov in which fundamentally new composition materials are used. It is an all-metal cantilever monoplane that has a high wing with slight sweep-back and a cantilever single-fin T-tail.

The wing of the aircraft is the torsion-box type. It consists of a center section and two outboard panels. The torsion boxes are airtight fuel tank-compartments. The wing is

equipped with powerful high-lift devices. This, combined with the airflow over the wing and the flaps from the cruise jet engines reduces the aircraft's takeoff and landing run.

The wing's center section has two double-slotted inboard extension flaps and four spoiler sections. Each outboard section of the wing has a triple-slotted extension flap, three sections of movable slats, four sections of spoilers and two ailerons with balance tabs mounted on them. In addition, there is a trim tab on the left aileron.

The tail of the aircraft consists of a vertical stabilizer, two rudder elements, two horizontal stabilizer elements and two elevator halves, on which a trimmer and balance tab and a geared tab have been installed. Deflectors have been installed in the nose section of the stabilizer. A trimmer has been installed on the lower section of the second rudder element. The aircraft's control surfaces have aerodynamic and mass balance.

The aircraft's power plant. The An-74 is equipped with D-36 turbofan engines, located in a forward position on the wing a short distance from the aircraft's plane of symmetry, and a TA-12 auxiliary power plant located in the right landing gear fairing.

The D-36 engine has a three-shaft configuration with a single-stage supersonic fan, a six-stage low-pressure transonic compressor, and a seven-stage high-pressure subsonic compressor. The engine's lubrication system is the circulating type, sealed under pressure. All lubricating system components, including the oil reservoirs, are mounted on the engine. The system for engine control includes fuel metering equipment and an electronic control system.

The engines are controlled either manually or automatically—from the automatic flight control system.

The engines have a pneumatic starting system, with automated control and electric ignition. Air for starting is taken from the auxiliary power plant, an airfield sooms during servicing at airfields located at elevations of up to 4,500 meters. An air start of the cruise engines is provided for in flight at altitudes of up to 7,000 meters and units are provided with air and electricity at altitudes of up to 9,000 meters. The air conditioning system operates on the ground, during takeoff, landing, and at altitudes of up to 4,500 meters.

The auxiliary power plant operates off the aircraft's fuel system, and it is started with the aid of a GS-12 TO starters during servicing at airfields located at elevations of up to 4,500 meters. An air start of the cruise engines is provided for in flight at altitudes of up to 7,000 meters and units are provided with air and electricity at altitudes of up to 9,000 meters. The air conditioning system operates on the ground, during takeoff, landing, and at altitudes of up to 4,500 meters.

The auxiliary power plant operates off the aircraft's fuel system, and it is started with the aid of a GS-12 TO starter-generator.

The Basic Systems

The flight control system provides control with an elevator and trim tab, a rudder and trim tab, ailerons with a trim tab, and spoilers. This system includes devices for takeoffs and landings: flaps and slats, stabilizer deflectors and spoilers. Servo units for the autopilot in the aircraft's automatic control system are connected to the mechanical linkage for controlling the ailerons, elevator and rudder.

The aircraft has dual controls, and it can be flown from both pilot positions with the basic controls (the control column, the wheel, and the pedals) or by the on-board system for automatic control of the aircraft.

A locking system is provided to set the control surfaces for parking. The control channels for the ailerons, elevator and rudder are locked with the aid of electrical devices.

The aircraft's landing gear is the tricycle type and consists of the nose gear and the main gear. The main gear includes two struts, each of which is equipped with a braked wheel. The main gear are retracted into compartments in the fairings. In the retracted position, the struts lie flat on the doors, but in the extended position they are secured by compression struts. The compartments are closed by the doors, which are hydraulically driven and secured in a closed position by locks. The nose gear is equipped with two nonbraking wheels and is retracted into a well covered by doors.

The aircraft's landing gear is equipped with systems for retraction and extension, for turning the nose wheels, and for braking the main gear. Two telescopic supports are installed under the cargo hatch threshold to prevent the aircraft from tipping over on its tail during cargo handling operations.

The landing gear systems are operated by the hydraulic system. If it fails, the gear can be extended mechanically.

The aircraft's hydraulic system supplies power to drive the flight control systems and high-lift devices, to retract and extend the landing gear, to turn the nose wheels, to brake the main gear, and to control the cargo hatch, windshield wipers, thrust reversal, and the lowering and raising of the supports under the threshold of the cargo hatch.

To be more precise, the aircraft has two hydraulic systems—the left one and the right one. A hydraulic pump of variable delivery mounted on the corresponding engine is the basic source of pressure in each of them. The hydraulic systems' delivery lines are connected with each other by a crossfeed cock which makes it possible to

utilize the pumps for any purpose as well as to provide for both hydraulic systems to operate from one of the engines if the second pump fails. Both systems have separate fluid reservoirs which are structurally combined in one unit supplied by the pressurization system.

An electrically-driven pump connected to the left hydraulic system serves as a reserve source of power, and it is used to create pressure in the system during ground operations. The left hydraulic system has a hand-operated power supply unit which is used to control the cargo hatch and to refill the hydraulic fluid reservoirs.

The aircraft's fuel system is designed to feed fuel to the D-36 and TA-12 engines. It is kept in seven torsion-box tanks. The tanks are divided into four sections of fuel use (zero, first, second and third). The feed tanks are the ones in the third section which have the feed compartments. Tanks in the zero section are used as reserves and are filled only for long-distance flights. Fuel is added through the central refueling point under pressure of up to 4.5 kilograms-force per square centimeter (0.45 millipascal) or when necessary, through the fillers. The total capacity of the tanks with centralized fueling is 15,965 liters. About 10 minutes are needed to fill the tanks completely under pressure.

The fuel supply for the engines is self-contained: the left engine is supplied from tanks in the left wing and the right engine from tanks in the right wing. Both the main fuel lines are connected with each other by a crossfeed cock. Fuel usage is controlled automatically by a fuel control and measurement system in accordance with an assigned program or manually.

RT, T-1, and TS-1 fuels (GOST 10227-86) [All-Union State Standard] or mixtures of these fuels in any proportion are used. In order to prevent the formation of ice crystals in the fuel filters during the winter, anticrystallization fluids (the "I" fluid or tetrahydrofurfuryl alcohol—TGF) are added to the fuel.

The aircraft's firefighting equipment is designed to prevent, detect, and extinguish fires that may break out in the wing compartments, the engines, the cargo cabin and the cockpit.

It should be pointed out that effective fire prevention measures were taken by the designers: firewalls were installed to block the spread of fire, fireproof and fire-resistant materials are used, and venting has been provided in areas of possible combustible liquid accumulation.

The firefighting equipment includes fire detection and fire extinguishing systems and a system to warn of engine overheating. Portable hand fire extinguishers are available on board. Fire is put out with the "KhLADON 114

V" extinguishant from two extinguishers which are actuated in two sections, one in each section. The extinguisher in the first section is actuated automatically or manually when fire is detected, and the extinguisher in the second section is operated only by hand.

The cockpit and cargo cabin each have a portable extinguisher containing the "KhLADON 115 V" extinguishant, which is designed to extinguish any burning substance, as well as electrical fires.

Fire extinguishing systems installed in the lower part of the fuselage are activated automatically in an emergency gear-up landing.

The aircraft's deicing system consists of hot air, electrothermal, and liquid subsystems. The hot air subsystem prevents ice formation on the slats, the stabilizer deflector, the leading edge of the fin, the engine air intakes, and the air intakes of the fuel tank venting system and provides heating for the windshield and canopy. In addition, the cockpit is equipped with two hydraulically driven windshield wipers to remove the water from melted snow and ice. The liquid subsystem supplies alcohol for the navigator's and hydrologist's blisters and the cockpit windshield.

Air tapping to protect the engine air intakes is performed through the third high-pressure stage of the compressor, and tapping to protect the wing and tail section is from the air preparation system. Air tapping is possible in all engine power settings.

The deicing system may be turned on automatically, by a warning from the icing detector, or manually. The system is turned off manually only.

The aircraft's air conditioning system is designed to create and maintain the conditions essential for survival in the cabins. It regulates the air temperature and ventilation of the cockpit and the cargo cabin, automatically maintains the assigned pressure in the pressurized cabin, and provides ventilation from the inside of the canopy transparency.

Structurally, the air conditioning system is made up of left and right subsystems, which are designed to condition the air in the cargo cabin and the cockpit, respectively, to protect respiratory organs and eyes from smoke and toxic gases which are created in a fire. Fixed oxygen equipment is installed in the cockpit and portable equipment is installed in the cockpit and the cargo cabin. Oxygen for the crew is provided for no less than 3 hours from the fixed system, but no less than 15 minutes under smoky conditions.

The aircraft's electrical systems. There are three of these systems: a three-phase alternating current of 200/115 volts with a stabilotect respiratory organs and eyes from smoke and toxic gases which are created in a fire. Fixed

oxygen equipment is installed in the cockpit and portable equipment is installed in the cockpit and the cargo cabin. Oxygen for the crew is provided for no less than 3 hours from the fixed system, but no less than 15 minutes under smoky conditions.

The aircraft's electrical systems. There are three of these systems: a three-phase alternating current of 200/115 volts with a stabilized frequency of 400 hertz, a three-phase alternating current of 36 volts with a stabilized frequency of 400 hertz, and a 27-volt direct current.

The basic sources for 200/115-volt power are two generators of 30 kilovolt-amperes each mounted on each engine. A generator of 40 kilovolt-amperes, which is activated by the auxiliary power plant, is an auxiliary source of power. A single-phase static inverter with a capacity of 1 kilovolt-ampere is an emergency source of 115-volt power.

The basic sources for 36-volt power are two three-phase step-down transformers with a capacity of 2 kilovolt-amperes each and a three-phase static inverter with a capacity of 0.8 kilovolt-amperes, which converts 27-volt direct current into three-phase alternating current.

The basic sources of 27-volt power are two rectifiers with a capacity of 6 kilowatts each, which convert the electricity from the 200/115-volt sources into direct current. The emergency sources consist of three storage batteries with a capacity of 25 ampere-hours each, which start the auxiliary power plant on the ground and provide for the testing of a limited number of direct current users and inverters and provide power in flight for the most important systems. **The aircraft's lighting equipment** provides basic and backup lighting for the instruments and control panels, the general and duty lighting of the cabins, the loading area and auxiliary facilities, lighting for the runway and taxiways, and to visually check icing on the stabilizer during night flights, as well as lights to determine the aircraft's position in flight, during taxiing, and in parking. The equipment provides the crew with information on the aircraft's systems and units with the aid of light and sound signals.

The aircraft's furnishings provide the necessary conveniences on board. They include adjustable seats for the pilots, navigator and flight mechanic, light filters and shades, passenger seats and a bunk, a wardrobe, galley and toilet. The cargo cabin is divided into two compartments by a flexible bulkhead.

The aircraft's emergency and rescue equipment includes facilities for rescuing the crew and passengers after a forced landing on land or water. An emergency axe, first aid kits, emergency cables and provisions are available on the aircraft. For flights planned over water, three inflatable life rafts and life jackets are provided.

The aircraft's cargo equipment makes it possible to load, unload and tie down cargoes and to transport them to their destination. Loading and unloading of cargoes are carried out with the aid of an on-board loading device which has a capacity of 2.5 tons. Most cargoes are packaged or carried on pallets or in containers. Cargoes are tied down with the aid of a combination of tie-down equipment.

Equipment has been provided for cargo drops.

The aircraft's electronic and navigation equipment. For navigation under automatic or manual control, as well as for processing and providing the necessary navigational and flight control data for the aircraft's on-board systems and displays, three complexes have been installed in the aircraft: navigational, flight control, and data (altitude and speed parameters).

The navigation complex is designed for automated solution of navigational problems in flights on air routes that are equipped or not equipped with navigation aids, in any season or time of day, at all latitudes, and under visual or instrument flight rules.

The flight control complex, together with the navigation complex and the altitude and speed data complexes, is designed for automatic, semiautomatic and manual flight control of the aircraft on an assigned track in all stages of flight. The flight control complex provides the crew with the necessary flight and navigation information and timely warnings on changes in the operating conditions and malfunctions in the systems which make up the complex; it limits the dangerous flight conditions and maintains the desired stability and handling qualities, accuracy features and safety requirements. It is a complex of interrelated systems: systems of automatic control, sensors and flight data displays, as well as monitoring systems.

The altitude and speed data complex is designed for the measurement and computation of data on altitude and speed parameters, the angle of attack, and the vertical G-load of the aircraft. The complex is a multichannel data-measurement system covered by monitoring which provides for reliable computation and display of the magnitudes of parameters necessary for flight control and navigation.

The aircraft's communications equipment includes on-board radio equipment which provides for communication with the outside and telephone communication within the aircraft, as well as an on-board facility for gathering acoustical data. Emergency-rescue radios for self-contained communication (outside the aircraft) with bases and airplanes (helicopters) in the search and rescue service are provided in the event that the aircraft is forced to land outside an airfield.

The radio navigation equipment is on-board equipment which provides navigational information. It includes radio equipment for determining relative bearings, long-range navigation, for navigation and landing in the VHF band, the aircraft range finder, the Doppler navigation system, the radio altimeter, the short-range radio navigation system in the UHF band, and the antenna feeder system.

The transponder equipment [radioapparatura aktivnogo otveta] installed in the aircraft is designed to work with domestic and foreign secondary radars in the ATC system on airways and in the airport vicinity and for transmitting signals on the aircraft's position and other data signals on flight parameters.

The on-board device for recording flight parameters is designed to record and store data on the technical condition of the aircraft's basic systems and the crew's actions in flight.

Service Life and Maintenance Periods

The aircraft is designed to operate for an extended period of time. Its complete service life, before it is written off, amounts to 40,000 flying hours, or 20,000 landings, or 20 years of operation. The period of service between overhauls is 6,000 flying hours, or 6,000 landings, or 7 years of operation. The length of service before the first overhaul is 9,000 flying hours, or 9,000 landings, or 10 years of operation.

The new An-74 transport aircraft has been thoroughly checked out under the most diverse conditions. The collective of the OKB imeni O. K. Antonov, headed by General Designer and Hero of Soviet Labor P. V. Balabuyev, is completing preparation of this specialized aircraft for series production. I believe it will make a worthy contribution in the development of the Arctic and Antarctic.

Physical Specifications of the An-74

Length, in meters	28.1
Height at rest (without cargo), in meters	8.6
Distance from the ground to the engine axis (when fully loaded), in meters	4.3
Minimum width of strip needed for a turn, in meters	25
Fuselage	
Length, in meters	25.7
Diameter, in meters	3.1
Maximum height of cargo cabin, in meters	2.2
Length of cargo cabin, in meters	10.5
Width of cargo cabin floor, in meters	2.1
Volume of cargo cabin, in cubic meters	54
Dimensions of cargo hatch opening, in meters	2.4x2.3

Physical Specifications of the An-74

Dimensions of access door, in meters	1.6x0.8
Dimensions of side emergency hatch, in meters	0.9x0.5
Dimensions of top emergency hatch, in meters	0.5x0.5
Height of cargo floor threshold (without cargo), in meters	1.5

Wing

Area, in square meters	98.6
Span, in meters	31.9

Vertical Tail Assembly

Area, in square meters	16.1
Height from fuselage axis, in meters	5.9

Horizontal Tail Assembly

Area, in square meters	24.5
Span, in meters	10

Landing Gear

Track (in accordance with tire axes), in meters	4.1
Wheelbase, in meters	8

Performance Specifications of the An-74

Maximum takeoff mass when operating from a 1,800-meter runway, in kilograms	34,500
Design altitude, in meters	8,000-10,000
Maximum speed, in kilometers per hour	705
Cruising speed, in kilometers per hour	550
Service ceiling, in meters	10,000
Range with reserve fuel supply for 2 hours of flight and a cargo of 1,500 kilograms, in kilometers	4,200

COPYRIGHT: "Grazhdanskaya aviatsiya," 1988.

8936

Conference Examines New Aircraft, Technology
18290008 Moscow IZVESTIYA in Russian
23 Sep 88 p 2

[Report by V. Belikov on press conference at Ministry of Civil Aviation 21 September given by Deputy Minister A. Aksenov and other officials under the rubric "'From Competent Sources': "Aircraft and Airports in the Coming Years"]

[Text] A press conference devoted to scientific and technical progress in the country's air transportation was held at the Ministry of Civil Aviation on 21 September.

Deputy Minister A. Aksenov and the chiefs of administrations and scientific organizations who determine the requirements for aircraft and the entire range of ground services—from city air terminals to runways—acquainted journalists with the short- and long-term prospects for Aeroflot's development. The discussion was frank and without reservation concerning complications and problems that have accumulated in past years in the "aviation shop" of the national economy.

Aircraft today and tomorrow. Updating of the fleet of passenger aircraft is lagging behind the requirements of the time, and because of this a significant proportion of flights are still being made with aircraft that are obsolescent—the An-24, Tu-134, and Il-62. They are not economical enough and they consume a great deal of fuel, increasing the fuel shortage, which is significant as it is. Airlines are being readied to replace them; the medium-range Tu-204 should make its first flight this November, and the long-range Il-96 airbus, which carries 300 passengers, will be taking off even sooner. The short-haul Il-114 is under construction, but the specialists attending the press conference already had an opportunity to familiarize themselves with the fuselage and 60-seat cabin.

The new Tu-204, which presumably will carry up to 47 percent of all air travelers in the country, is not inferior to any foreign models of the same type today—the American Boeing 757 and the West European A-320—except for the fact that these aircraft are already carrying passengers around the world. Aeroflot, together with the aircraft industry and other supplier ministries, has to shorten our customary 5-year period for testing aircraft to 2 years. At the same time, we need to organize series production of a sufficient number of airliners and familiarize crews and technical personnel with them quickly. Similar problems are arising in connection with introduction of the Il-96, which has been awaited for a long time on transcontinental routes.

"We want to reduce the time by means of so-called combined flight tests," A. Aksenov said. "An entire combination of the tests and conditions required, instead of the traditional sequence—plant, state, and operational tests—is being organized in a different way, but not to the detriment of reliability and the guaranteed safety of future flights, of course. A substantial advantage will be provided in the times and expenditures required for testing by certification of the equipment, individual systems and apparatus installed on special check stands, not under flight conditions. This is also common practice in world aircraft manufacturing, incidentally."

Aeroflot's enterprises are already getting ready to receive the first aircraft: Borispol at Kiev will receive the Tu-204, and the Il-96 will go to Leningrad Airport and Domodedovo in the capital.

Where is the replacement for the veteran Il-14? The legendary "aviation workhorses" have served for four decades and have dwindled to nothing. Why couldn't they be restored? That is not the solution, say authoritative persons; under today's requirements the Il-14 will not receive the right to fly. Instead of one all-purpose aircraft, they plan to use two new ones in the polar regions—the turbojet An-74 and the turboprop An-28A ("Arctic" version). The advantages of the first aircraft are its speed, cargo capacity, and modern navigational equipment. The advantages of the second one are that it can operate under simple conditions and basing and is able to carry out fish reconnaissance visually and guide ships through the ice. True, we should have skis in addition to wheels for both of the "An's." They will not be able to go to the Arctic, and especially the Antarctic, without this...

Two Polish aircraft—the V-3 light helicopter and the "Dromader" single-seat monoplane—will be tested in the Soviet Union. The small rotorcraft is needed as a speedy, quick-climbing aircraft for communications, as an ambulance, and for GAI [State Vehicle Inspection] patrols. The "Dromader," which has a special tank for fire retardant, is already being used in several European countries for forest protection from the air and to extinguish fires quickly when they first appear. Will it appear over the vast expanses of the Siberian taiga one day?

It appears that the heavy An-26 and Il-76 will prove to be more suited to protect our "green friend" from fire under our conditions. The appropriate design collectives are preparing such flying tankers for testing.

A helper is leading to a landing... It is common knowledge that the path toward all-weather aviation lies through improvement in radio systems for automated "blind landing." Responding to a question from an IZVESTIYA correspondent, the press conference participants said that one of the specially equipped Il-62's had recently completed a series of landings under conditions of nearly zero visibility. The radio signals of the system set up at the runway gave precise commands to the aircraft's controls right up to the point of touchdown.

It is planned to equip certain major mainline airports with such systems in the early 1990's. However, this path is expensive and labor-intensive, and requires that the existing ground equipment, even the lighting facilities, be completely replaced. Using a system including space satellites is more promising for controlling a landing under zero visibility; they could also assist in aerial navigation and in search and rescue operations for crash victims.

Work to develop such space facilities for Aeroflot is under way.

'Trassa' Air Traffic Control System Highlighted
18290006a Moscow GRAZHDANSKAYA AVIATSIYA
in Russian No 8, Aug 88 pp 21-27

[Article by Ye. Korolev, department chief of the Air Traffic Control Main Administration; G. Oliferenko, candidate of technical sciences; and Yu. Asaturov, chief of a sector of the NETs AUVD [Scientific Experimental Center for Air Traffic Control Automation] and candidate of economic sciences: "The Controller's Electronic Assistant"; first of two-part article attributed to Korolev and Oliferenko and second to Asaturov; first two paragraphs are editorial introduction]

[Text] "I see, I hear, I control"—this is the basic principle of the work performed by civil aviation's air traffic control specialists. The new "Trassa" automated UVD [air traffic control, ATC] system makes it possible to implement it in full measure and to make the flight of each aircraft reliable and safe in all respects. This system, the first domestic ATC system of its type, is in operation at the Simferopol Airport.

Specialists who have taken part in developing and introducing the "Trassa" AS UVD [automated ATC system] tell us about its technical and operating features

A brief word on its place and importance in the overall ATC system. The existing organizational structure of civil aviation's traffic control service was shaped in the late 1960's and early 1970's, and it has remained practically unchanged to this day. At the same time, the number of flights by aircraft in all departments has increased significantly in recent years, and the demands to ensure their safety have naturally intensified. Hence the increased burden on the organs which are engaged in controlling air traffic firsthand. This is why in due course it became critically necessary to establish regional automated ATC centers (ATs UVD).

The Moscow and Simferopol automated ATC centers have now been established and are operating successfully, tests are under way at the North Caucasus center, and planning and construction operations to establish the Ukrainian, Volga, Transcaucasus and other centers are being carried out.

ATC automation is being introduced in conjunction with organizational measures to increase efficiency in the use of airspace and to reduce losses from using flight levels that are not economical and from putting aircraft in holding areas, as well as from closing airports and individual sections of airways.

At the same time, improvement in ATC organization by introducing and utilizing automated systems, new radar complexes and other electronic facilities is being held back not so much by the capabilities of industry as by unresolved problems of an economic and financial nature on a sectorial scale. The point is that under the conditions of cost accounting, we have to take into

account that large automated ATC centers with a high level of automation cost on the order of several tens of millions of rubles, and the expenses to operate them are roughly one-quarter of the cost of each one. For this reason, such expenditures are very substantial even for large civil aviation administrations, not to mention their structural subunits, where the problems of maintaining expensive ATC centers come to the forefront.

Under the new conditions of economic operation and self-financing, the sector has run into the problem of having advance orders refused even for relatively inexpensive equipment for controllers (consoles, "VPP ZANYATA" ["Runway in use"] panels, and other equipment). Or take the requests for controller simulators, which are extremely necessary to improve ATC specialists' vocational training. They are being received in unacceptably small quantities as well. It follows from this that production administrations and their structural subunits should be given appropriate economic incentives to guarantee labor collectives' interest in acquiring automated systems and other new equipment for themselves to provide for increased flight safety in the ATC process. Then commercial interests will not conflict with the common objective of improving the quality and reliability of the entire ATC system.

The "Trassa" automated ATC system, with its relatively low cost, which is many times less than the "Strela" system, for example, has been called upon to resolve this problem to a certain extent. This is the first ATC system on Aeroflot routes, developed by specialists of the Minsk Scientific Research Institute of Automation Aids jointly with the Scientific Experimental Center for Civil Aviation ATC Automation, for regional centers with average air traffic density.

Controllers of the Simferopol Regional Center of the Unified ATC System (RTs YeS UVD) are working with the "Trassa" automated system at present. But the time is not far off when series models of it will begin arriving in the structural subunits of civil aviation. The "Trassa" system is being awaited by regional centers in Siberia and other parts of the country where the problems of providing aircraft with ATC radio aids of high reliability and improving regions' capacity, as well as reducing the burden on controllers and increasing their work productivity, are becoming more critical every year.

The necessity of introducing the "Trassa" automated ATC system is dictated by the fact that existing systems, which are based on the use of outdated radio aids, are nearing the limit of their capabilities. Controllers in these systems do not receive a full picture of the rapidly changing situation in the air and spend a great deal of time acquiring missing data to make the best possible decision in directly controlling air traffic. The burden on controllers is increased considerably during the "peak hours," as well as when there are special flight conditions

or special cases when an aircrew urgently requires reliable information on the traffic situation and efficient assistance from an ATC organ.

In such extreme situations the controller usually has practically no time to analyze and predict development of the traffic situation in order to make a competent decision. And only high professional skill and experience help the ATC specialists in this case. The assistance of electronics here would be simply invaluable.

Recently, for example, a foreign "flight"—a Boeing passenger aircraft which was headed for Moscow and did not contact ATC organs—turned up at the Minsk Regional Center of the Unified ATC System in the sector handled by controllers A. Sermyazhko and O. Kisel (ATC shift supervisor A. Shostak). This was a special case which required perfected professional training, rapid handling of additional operations in strict conformity with regulatory documents and unremitting control over the air traffic situation. The controllers warned all aircraft in the vicinity of the Boeing and provided data on its route into the adjacent region. As a result, everything turned out well. But there would have been less anxiety if the controllers had had modern computer equipment capable of providing effective assistance in predicting the events unfolding and giving advance notice of conflicting situations.

The difficulties of air traffic control that is not automated are intensified by the absence of continuous radar monitoring of airliner flights in individual airway segments and altitudes. Auxiliary regional centers (VRTs) which are linked with the regional ATC center by inter-city communications channels, are usually established in such cases. It is common knowledge that this complicates ATC organization considerably, and the process of operating the VRTs itself and the leasing of communications channels require additional financial expenditures from aviation enterprises.

For this reason, improvement in ATC organization and reduction of the controllers' burden by introducing automated systems of the "Trassa" type into ATC operations are viewed today as a necessary condition for restructuring the entire ATC process. In particular, on the basis of data forecasting the increase in air traffic density at each regional center of the Unified ATC System, a plan has been worked out to equip them with systems having different levels of automation. Implementation of this plan is dictated by today's requirements.

It is much easier for controllers to work in Simferopol, where the "Trassa" system is in operation, than in other regional centers. On their dichromatic scopes, the specialists see up to 100 coordinate symbols for aircraft with the identification codes of the controllers who are working with them. The symbols are connected by lines with illuminated tabular tracking logs. They contain information on an aircraft which the controller needs: its side number (callsign), its actual and assigned flight altitude,

the fuel remaining, its ground speed and course. So that the ATC specialist is not overloaded with superfluous data, the coordinate symbols of aircraft being worked by other controllers in the region are accompanied by abbreviated logs. But each of the controllers has the opportunity to display the complete tracking logs on the screen and to look over the situation in the entire region when necessary. Moreover, up to three sectors may be combined when there is less traffic.

The dotted lines of the airways, the boundaries of the region and the sectors and the letter designations of mandatory reporting points, as well as other symbols and lines, are illuminated in red on the electronic chart displayed on the screen.

The bearing of an aircraft is also determined in a different way. The customary mechanical indicator of an automatic direction finder is not seen here. The bearing lines in the "Trassa" system, up to four in all, are electronic. They are illuminated when the crews contact the controllers. They may be turned off when necessary. The controller can always determine an aircraft's position, even if its coordinate symbol is not on the screen, by the signs and figures at the beginning of the lines for the direct and reciprocal bearings.

The "Trassa" automated ATC system also provides controllers with a considerable amount of other information for efficient traffic control. The process of receiving and handing off control of an aircraft between controllers is fully automated in the system. When an aircraft nears the boundary of an adjacent sector, let us say, the controller who is working with it performs the appropriate console operation and the complete tracking log starts blinking right away on his neighbor's screen. This means that he should assume responsibility for controlling the aircraft. After this control has been established, the tracking log of the specialist who handed off control is shortened to the symbol of the receiving controller. Automation of the process of receiving and handing off aircraft greatly reduces the amount of time for this procedure and eliminates the need for controllers to coordinate by means of a protracted exchange of spoken information.

Quite a few experienced, professionally trained specialists are working in the Simferopol Automated ATC Center. They have all become thoroughly familiar with the procedure for working with the complex equipment in the "Trassa" system and have mastered it in practice. The developers and specialists of the Scientific Experimental Center for ATC Automation have provided them with considerable assistance in this respect. In accordance with the programs approved by the Air Traffic Control Main Administration of Civil Aviation, they have trained a large group of controllers who are now acting as "master oscillators" on the shifts by continuing to train the young ATC specialists.

Even before the system was in regular operation, these controllers had on-the-job training at the consoles, seeing the actual air traffic on their screens and listening to the radio traffic between the controllers in the system in operation at that time and aircrews. The experience accumulated enabled them to make the transition to flight operations control with the "Trassa" automated ATC system in the period of time stipulated.

For example, important work in the professional training of shift specialists has been carried out by Senior Controller I. Repkin, who supervised their on-the-job training in a regional center of the Unified ATC System.

ATC Shift Supervisor V. Petrenko is on duty. There is a calm, businesslike atmosphere in the room. Each specialist at his work position is confidently controlling air traffic without tension or nervousness. This time, incidentally, the air traffic situation over the Crimea has become quite complicated and nearly all routes have been covered with massive thunderclouds. We can see that the controllers monitoring the diagram on their consoles have turned on the analog-digital mode on their scopes. The concentrations of powerful thunderclouds are scanned thoroughly in this mode by the local radar position. The specialists have been making use of an electronic vector measuring device to determine the distance between aircraft and the dangerous cloud cover. This enables them to measure not only the distance between two points selected on the scope, but the direct and reciprocal bearing of the vector measuring device as well. As a result, radio traffic with aircraft has been specific and businesslike, without any interruption or confusion.

The work is somewhat more complicated in the adjacent international sector. All contacts between the ATC specialists and the crews of foreign aircraft are in the English language. The controllers are carrying out their console operations efficiently, without unnecessary tension. The blip from a new aircraft of a foreign airline has appeared on one of the scopes. The appropriate specialists assumed control of it right there and introduced the nomenclature for the point of entry, the callsign, assigned altitude, and transponder code into the system. But this is not enough. All attention is now directed at the actions of the crew and the accuracy with which they follow the commands given to them. Only when the aircraft crosses the border stipulated will its coordinate symbol be changed on the scope and a complete tracking log appear with the identification of the controller who is working with the foreign aircraft. By comparing its assigned and current flight altitude, the controllers are certain that the foreign aircraft has changed its altitude, that is, it has shifted from the altitude separations in use abroad and those established in the USSR.

So the general opinion of controllers is that the "Trassa" automated ATC system is a reliable assistant in controlling air traffic. It covers a large area under the Simferopol Regional Center—roughly 400,000 square kilometers. This is achieved with the aid of automated complexes at radar sites hundreds of kilometers from the center.

Let us point out an important feature of the "Trassa" system. Special primary radars, which are expensive, are not needed for it. For this reason, establishment of this automated ATC system is much less expensive than other automated systems, since the existing sites with inexpensive radars are being used.

In addition, a special computer complex with a distributed structure which has modules with flexible redundancy has been developed for rapid processing of data and solution of calculation problems. This ensures the high reliability of the system. The computer complex is the "brain" of the "Trassa," which includes 36 minicomputers. All units in the system have backups, and their operation is monitored continuously. If there is a malfunction, a special symbol will appear on the console of the shift engineer for the automation complex and a sound warning is included.

As already noted, "Trassa" provides information on air traffic over a wide area—several hundred thousand square kilometers. This makes it possible to combine several regions into one, to do away with the auxiliary regional centers, and to avoid expensive intercity communications within the unified region.

The system's main advantage is that it reduces the workload of each controller by more than half and makes time available for analyzing the situation and making decisions. In the final analysis, all this improves flight safety and rules out "disruptive" situations in air traffic control.

Several years have passed since the Minsk engineers and civil aviation specialists began operating the "Trassa" system. They tested it thoroughly. The shortcomings revealed were eliminated on the spot. And even now the developers are devoting attention to their creation, updating equipment and improving performance.

The center's specialists are actively providing them with assistance. They are continuing to refine the system. In particular, the new models of it will have improved features and will solve a broader range of problems. They include ones such as warning controllers of potential conflicting situations and training ATC specialists at controller consoles in reserve without interrupting actual traffic control. Other innovations are being introduced as well. Thus the area covered will be substantially increased by connecting up two additional radar complexes and six complexes for automation of the radar position. As a result, up to 150 aircraft may be tracked at

the same time. [Preceding portion of the article was written by Ye. Korolev and G. Oliferenko; the following portion is attributed to Yu. Asaturov only]

In adding to what has been said about the "Trassa" system, I will note that very complex problems were resolved in its development: the use of all radar facilities in operation and the promising facilities of the "Skala" type, increasing the capacity of ATC sectors by using secondary radar facilities, improving efficiency in the interaction of controllers in different departments, making use of air traffic information combined from several radar sources in the entire regional center, and automating computed tasks and certain interaction functions. Operational tests of the system have confirmed its high efficiency.

The "Trassa" system is made up of two subsystems: radar and communications.

The radar subsystem surveys, processes and relays data from radar complexes dispersed in the regional center's territory and organizes unified information on air traffic and its display at controllers' work positions.

The subsystem includes up to four complexes for automation of the radar position and a complex of automation facilities for the regional center. The equipment of the radar position provides for coupling with air route primary radars of the "Mech" or other types and self-contained secondary radar of the "Koren" type, it determines the coordinates of aircraft and provides related data on the side number, current flight altitude, fuel supply, and other information coming from the transponders, and it enables digital direction finding data to be entered into a single narrow-band communications channel between the radar site and the regional center.

The automated complex for the radar position provides for interference coming from the primary and secondary radars to be filtered in the units for primary and intermediate [mezhhobzornaya] data processing. The data reprocessed in them, together with the direction finding data, goes to the regional center's automation complex by a standard four-wire communications channel at a speed of 2,400 bits per second. In the event that the regional center's equipment is coupled with a modern radar complex of the "Skala" type, the complex of equipment at the radar position is not used.

The receiving center of the communications subsystem, as a rule, is located within 3 to 5 kilometers, and the transmitting center is located near the automation facilities for the radar position. Switching to transmission and reception from the regional center, as well as the relay of radio traffic, is by standard telephone channels.

The combination of data from four dispersed radar sources, secondary processing of coordinate information with vectors of the extrapolated position of aircraft and

display of the air traffic information obtained are provided by the regional center's automation facilities. The computer complex which performs the processing is based on two minicomputers and 34 specialized computers in accordance with the modular principle. All the complexes are built so that continuous functioning is ensured during the system's operation, preventive maintenance and repair. The computer complex provides for the automatic display on dichromatic screens of combined data on the traffic situation and highly accurate graphic data; it provides data on regular and temporary flight routes, on the automated receiving and handing off of aircraft by interacting controllers, on the measurement of distance between any two points on the traffic status scope, on calculation of the time over route changing points, and so forth.

Air traffic is controlled from the controllers' consoles—collective work positions which include the positions for a radar controller, a controller monitoring the graphic representation, and an operator. Each of the collective work positions is equipped with two air traffic displays to ensure greater reliability. Controls for entering and extracting data on the traffic situation are located on the tops of the consoles—a console for entering data and sensors of coordinate codes and controls for ground communications (consoles concentrating the controllers' channels of intercity telephone communication, panels for loudspeakers and telephones, and so forth).

Air traffic displays are installed at the positions occupied by controllers engaged in radar control and procedural monitoring and operate in three modes: synthetic, analog, and television. The synthetic mode is the basic operating condition. The radar controller's scope is a dichromatic cathode-ray tube with a screen diameter of 480 millimeters. Cartographic information, the bearing line, the routes and the logs tracing the routes are displayed in red, and all other data are displayed in green. The controller engaged in procedural monitoring uses scopes with monochromatic cathode-ray tubes which have a long afterglow; aside from operation in the synthetic mode, they are used to observe weather developments in accordance with analog data from the central primary radar.

The "Trassa" system provides for the recording and playback of voice traffic and data on the traffic situation observed by the controller, along with the corresponding console operations.

The communications subsystem of the regional center provides for communications with pilots, communications by telephone and public address system among the controllers, with an airport's ATC centers, with adjacent centers, with the zone center, and other users.

The system's use of combined information on the traffic situation in an entire region obtained from primary and secondary radars and the automated solution of a number of calculation problems and technical operations in

air traffic control have made it possible to increase the capacity of the ATC sector and the regional center as a whole. The capacity of the ATC sector during the period of heaviest traffic has been increased by roughly one-fourth as much.

Preplanning work has been carried out on "tying in" the "Trassa" system in 10 regional centers. Construction and installation of two systems in the Krasnoyarsk and Novosibirsk ATC Centers are being planned in the current five-year plan. Further improvement in the system's effectiveness for regions with moderate air traffic density is linked with the organization and utilization of unified airport and air route radar, automated provision of weather information for the controller, detection and provision of information for the controller on aircraft that come closer together than the distance limits permitted, and automated completion of flight plans. It is planned to conduct tests on an improved version of the system and to put it into operation in the Unified Transcaucasus Regional ATC Center.

Basic Specifications of the "Trassa" System

Number of control sectors	up to 8
Number of aircraft tracked simultaneously, including with data from primary radars (with the vector of extrapolated position)	up to 100
Number of radar sites	up to 4
Remote control of shortwave radios and those using UKV [frequencies above 30 MHz]	up to 40
Overall length of chart lines, in meters	up to 10
Number of types of cartographic information	up to 6
Number of unified control sectors	up to 3
Service life, in thousands of hours	up to 80
Number of bearing lines displayed simultaneously at a work position	up to 4
Number of types of mosaicked integration of data from primary radars	up to 6
Number of symbol positions in the tracking log	up to 18
Number of tracking logs at one work position	up to 25

COPYRIGHT: "Grazhdanskaya aviatsiya," 1988.

8936

Tu-134 Flying Laboratory Noted

18290006b Moscow GRAZHDANSKAYA AVIATSIYA
in Russian No 8, Aug 88 pp 32-33

[Report by V. Lamzutov, GRAZHDANSKAYA AVIATSIYA public correspondent, under the "Science for Production" rubric: "A Flying Laboratory"]

[Text] I saw this aircraft for the first time a year ago. It was standing on the apron of the Tselinograd Airport, shining with fresh paint and washed by the morning rain. This aircraft was distinguished from the usual passenger Tu-134 by the "SKh" designation and an ear of grain had

been drawn on its fuselage. One of the engineers of a PANKh [Use of Aircraft in the National Economy Administration] department explained to me that they had determined the quality of agricultural work in the oblast and made a more accurate crop forecast from on board this aircraft.... The Tu-134SKh was leaving for Tashkent in an hour.

So in order to familiarize myself more closely with the new aircraft, I went to the State Civil Aviation Scientific Research Institute.

"The Tu-134SKh is designed for comprehensive analysis of the ground surface by remote-controlled sounding, utilizing photographic and nonphotographic forms of surveying which enable us to work out production and experimental problems in agricultural production," V. Orlov, a key engineer on the Tu-134SKh, told me.

The flying laboratory is considerably different from the passenger aircraft. In the lower part of the mid-fuselage section there are three pressurized glass-covered compartments and one that is not pressurized. All four compartments are closed with special doors by remote control. In addition, two hatches with optical glass have been mounted in the upper part of the cabin. Under the central part of the wing there are two detachable pods to house the antenna for the side-looking radar. Some of the windows, as well as the emergency hatches over the wing, are covered by the skin.

But what mainly distinguish the Tu-134SKh are the work positions for 10 operators (flight observers), where special equipment, control panels and many instruments have been installed. The aircraft also has its own dark room, located in the rear of the passenger cabin.

What is most important about the flying laboratory is its "stuffing," of course. The aircraft is equipped with the latest navigation complex which, together with the ABSU-134A [automatic onboard flight control system], provides for automatic navigation and crabbing [galsirovaniye] (by executing a grid of parallel routes of an assigned length), as well as the distribution of signals to the surveying apparatus, including data on the navigational parameters. In addition, special equipment has been installed in the Tu-134SKh, including: a modern aerial camera with an adapter and exposure meter, a multichannel scanning system, side-looking radar, a system for recording parameters, and data converters, as well as other systems and devices designed to analyze the ground surface by remote-controlled sounding, utilizing photographic and nonphotographic forms of surveying.

I would like to provide a little more detail on certain equipment and systems used in the flying laboratory. Especially the equipment for remote-controlled sounding of the ground surface. The first side-looking radar, the "Toros," made its appearance 10 years ago on ice reconnaissance aircraft. In particular, one of those radars

installed in an An-24 aircraft "sounded" the ice to define the route for the nuclear-powered vessel Sibir more precisely in steering cargo ships from Murmansk to Pevék.

The new "Nit" radar, in which the experience gained in using its predecessor "Toros" in ice reconnaissance was taken into account, was tested in May last year in the Tu-134SKh flying laboratory. The very first test flights showed that a radar survey makes it possible to objectively evaluate and determine the dynamics of development for agricultural crops in any season. And a survey may be made not only at any time of day, but even when there is an unbroken cloud cover. The dry and wet areas of agricultural lands and the waterlogged and marshy areas are clearly visible in the photographs. In particular, the cotton fields in the process of leaching and the check plots of rice that are being filled with water.

The radar survey is particularly effective in resolving a combination of water and reclamation problems and in making long-distance observations of the progress of fall and spring field work. As an example, it provides the opportunity to identify deficiencies in the vegetative cover resulting from soaking, winterkill, improper procedure in applying agricultural chemicals to the fields, or after the effect of other harmful natural or climatic factors.

The attribute of the radar that is most useful is the ability to "look" even under a layer of snow. Poor absorption of the waves in a dry snow cover makes it possible to "see" the condition of the shoots of winter crops and to develop a strategy in advance for taking care of the plantings in the spring. Moreover, the radar operates effectively in "stressful" natural situations—floods, mud flows, hurricanes, and so forth. After all, they usually occur when the weather is bad and aerial photography is practically impossible.

However, it is common knowledge that photographic and radar methods are not mutually exclusive but supplement each other, and provide agricultural specialists with information that is equally useful, even though it is different. This is the reason there is so much photographic equipment on board the Tu-134SKh. One of the cameras (the TAFA-10 topographic aerial camera) is designed to take pictures useful for stereophotogrammetric measurements in making topographical charts, and another piece of equipment (the AFUS-U universal aerial camera mount) is designed for turning the camera in accordance with the aircraft's drift angle, as well as to reduce the effect of vibration on picture quality. A third piece of equipment (the MKF-6M multiple-band photographic equipment) is for scientific-method and experimental-production aerial photographs in six bands of the electromagnetic spectrum, selected within the limits of the visible and near-infrared range by means of "filter-film" combinations. The multiple-band aerial photographs taken with this equipment meet the interests of agriculture.

In speaking about the flying laboratory, we cannot help but mention the modern "MAK" navigational complex, which provides the Tu-134SKh with automated navigation to an assigned point on a route in any season, at any time of day, at all altitudes, and in visual and instrument weather conditions. Together with the ABSU-134A, this complex not only takes the aircraft automatically on a horizontal plane in accordance with a programmed route, it also provides for efficient application of a flight program:

- automated flight on a reciprocal heading of the route flown;
- redirection to an operational turning point (PPM) for which coordinates are entered from the console;
- flight to any point assigned operationally or produced from the program by the shortest route;
- flight on a route parallel to the one that was programmed; and
- crabbed flight [polet galsami].

I have named only part of the unique capabilities of the flying laboratory's equipment and systems, of course. Many of them were brought to light during the plant tests, as well as the tests conducted at a special proving ground, in which Aeroflot specialists (GosNII GA, NETs AUVD [State Civil Aviation Scientific Research Inst.

As a result, the Tu-134SKh was permitted to engage in comprehensive analysis of the land surface by remote-controlled sounding methods at the request of a subunit newly established in the USSR Gosagroprom—the All-Union Scientific Research Center "AIUS-AGRO-RESURSY" [automated data management system for agricultural resources]. This center is leasing An-2 airplanes and helicopters from Aeroflot in addition to the Tu-134SKh. It is working in close collaboration with institutions of the U.

As a result, the Tu-134SKh was permitted to engage in comprehensive analysis of the land surface by remote-controlled sounding methods at the request of a subunit newly established in the USSR Gosagroprom—the All-Union Scientific Research Center "AIUS-AGRO-RESURSY" [automated data management system for agricultural resources]. This center is leasing An-2 airplanes and helicopters from Aeroflot in addition to the Tu-134SKh. It is working in close collaboration with institutions of the USSR Academy of Sciences and the VASKhNIL [Academy of Agricultural Sciences imeni V. I. Lenin]. The VNITs [All-Union Scientific Research Center] "AIUS-AGRORESURSY" has the most up-to-date computer complexes at its disposal for efficient automated processing of aerospace and aviation data. This data is collected and processed by territorial subunits in Krasnodar, Tashkent, Tselinograd, Saransk and Kiev.

"The flying laboratories have become a well-established part of agroindustrial production today," states N. Kruppenko, chief of the VNITs "AIUS-AGEORESURSY" laboratory. "There are still questions and problems that are unresolved, however. In particular, distinguishing the crops themselves in the photographs taken with the help of the Tu-134SKh remains an important problem. After all, they all have basically the same green cover. Last season we succeeded for the first time in separating the fields of potatoes, oats and rye... I believe that further development of the method of remote-controlled sounding will be of invaluable benefit in the system of unified automated management of agriculture."

Four Tu-134SKh aircraft are operating in behalf of the country's agroindustrial complex today. But it will not be long before an entire detachment of the Tu-134SKh aircraft will be covering the basic agricultural regions with photographs regularly. It is also worthy of note that this aircraft will be widely utilized in other sectors of the national economy as well.

COPYRIGHT: "Grazhdanskaya aviatsiya," 1988.

MOTOR VEHICLES, HIGHWAYS

Yelabuga Tractor Plant Switches to 'OKA' Production

18290004a Moscow SOVETSKAYA ROSSIYA in Russian 25 Aug 88 p 2

[Article by N. Sorokin: "The 'OKA' Is Starting at Kama"]

[Text] The cheap OKA subcompact, which they had planned to produce in Serpukhov on the banks of the Oka, has changed its place of birth. They have "devoted" a large construction site at Yelabuga to this vehicle. The reorientation of the economy toward the intensive satisfaction of the requirement for consumer goods dictated this decision.

The fact that we already exceed many developed countries in the number of tractors produced also predetermined the production change from tractors to subcompacts at the gigantic production project that has been underway for a number of years in Tatar at Yelabuga. Increasing unit power and decreasing the specific amount of metal per item—these avenues in the development of our domestic machine building now require immediate solution.

A. Shuvayev, the general director of YelAZ [Yelabuga Motor Vehicle Works], reported to a TASS correspondent:

"Without curtailing the full-scale construction of first a tractor and now a motor vehicle plant, we plan to build capacities for the production of passenger cars, especially the small class Oka type." This reserve resulted from the fact that it is now planned to produce very modern integrated tractors in the Lipetsk works at a rate of 30,000 to 45,000 a year. The requirement for tractor engines and other assemblies is being satisfied by reconstructing a number of other branch enterprises. Thus, it will be completely possible to manage without the Kama Tractor Works.

It has been decided to build YelAZ at rates that are unheard of in the branch. The population's increasing demands for passenger cars, especially for the cheap and economical Malyutki, dictate this. The commissioning of the first phase for the production of 300,000 vehicles a year will occur in 1991; it is necessary to double capacities in two years and to bring production to 900,000 in 1995. The task is a serious one; however, it is completely feasible by combining the efforts of the builders, designers and operating staff. The fact that the building for the first phase of the machine-tool instrument plant—the YelAZ starter—is already being erected, simplifies the situation. They are installing the production equipment in it. The buildings for the fuel equipment, engine and casting plants are being erected. Since the beginning of the year, 85 million rubles of capital investments, including four million above the

plan, have been assimilated at the industrial site. The tempos of city-building are also growing: One million rubles of capital investments above the plan have been assimilated.

Taking advantage of the situation, the enterprise director has appealed to Komsomol members to support the initiative of the plant workers—to declare the construction project to be an urgent Komsomol one. Kama will produce the very cheap and convenient to operate subcompacts that young drivers like. Who, if not youth, should erect the plant and develop the new production facilities.

COPYRIGHT: Izdatelstvo "Transport," "Avtomobilnyye dorogi," 1988.

08802

New Minsk Truck Series Reviewed

18290004b Alma-Ata AVTOTRANSPORT KAZAKHSTANA in Russian No 6, Jun 88 pp 22-23

[Article by O. Permyakov, design engineer at the Minsk Motor Vehicle Works: "A New Family of Minsk Trucks"]

[Text] At the present time, the Minsk Motor Vehicle Works is shifting to the production of a new family of vehicles whose base models are the MAZ-6422 (three-axle) and MAZ-5432 (two-axle) mainline truck tractors. Based on their characteristics, the new vehicles will considerably surpass the former MAZ-5335 family but will nevertheless lag behind the best foreign analogues in certain indicators. That is why the task has been posed to insure the achievement of these indicators in the near future and to surpass the forecasted level of the best foreign motor vehicles by the middle of the next five-year plan.

During the designing of the new family of vehicles, a large amount of design and experimental work was performed, during which considerable attention was paid to questions related to design safety and increased dependability. This is especially important for mainline road trains, which operate under high speed conditions, and for construction dump trucks and lumber carriers that constantly carry considerable loads.

The design safety requirements, which flow from the state all-union standards corresponding to CEMA, EEC and UN ECE rules and the national requirements of individual countries, were satisfied when developing the new family of vehicles. The main ones are: Motor vehicles and road trains have protection devices to warn about the approach of passenger cars. Motor vehicles and road trains have service, emergency, parking, and auxiliary brakes. The control linkage of the service braking system has two circuits. When one of the circuits fails, the remaining operating circuit insures the braking of the vehicle with an efficiency that is more than 30

percent of the value stipulated for the service braking system. Each circuit in the control linkage of the service braking system has an independent power cell. When either control linkage circuit is damaged, the power source does not stop feeding the operating circuit. Manometers control the pressure within each circuit and, in addition, there is a light signal that warns the driver when the pressure falls to 65 percent of the nominal value. When there is a break in the linkage of the trailer component's brakes, a device that insures the normal braking of the tractor truck operates on the tractor trucks. The parking brake keeps the vehicle on an incline of 16 percent and a truck train on an incline of 12 percent. The seats are equipped with places for attaching safety belts. The steering wheel column and the steering wheel are injury-safe. Forces on the steering wheel do not exceed 8 kilograms. The rearview mirror, sticking out beyond the clearances, is displaced by a force of no more than 25 kilograms. The mirror provides no distortions and insures visibility of road signals. The windshield is made of injury-safe Tripleks-type glass; the others are tempered glass (stalinite). The cab of the vehicles will withstand a frontal blow of 4,500 kilograms, the static load on the roof is more than 6,000 kilograms, and the load on the rear member is more than 1,800 kilograms. Unprotected metal surfaces capable of injuring a person are absent in the cab. The instrument panel, steering wheel housing, etc., are made of semi-rigid polyurethane. Radio interference does not exceed allowable limits. The lighting equipment corresponds to international requirements. The vehicles and road trains are equipped with an emergency signal system which flashes with a frequency of 90 plus or minus 30 a minute. The width of the clearance corridor of road trains when moving on a curved radius of 12 meters does not exceed 6.7 meters. The dimension of the vehicles and road trains does not exceed 2,500 millimeters in width.

The entire amount of work to increase dependability was divided into three major stages. During the first stage which was completed in 1985, modernized MAZ-64227 and MAZ-54322 truck tractors went into production. The service life of these vehicles has increased from 320,000 to 450,000 kilometers; TO-1 maintenance intervals have grown from 5,000 to 8,000; and TO-2—from 20,000 to 24,000 kilometers. The amount of maintenance work has decreased thanks to improvements in the design and the introduction of assemblies requiring less frequent lubrication. We have managed to reduce fuel consumption by approximately six percent. The cab frame was strengthened and its cushioning was introduced. The inclusion of effective anticorrosion protection has increased the life of the vehicle. Elongated springs have improved the smoothness of the ride. The fastening of the frame's cross-member was strengthened. The reliability of the drive axles was increased by incorporating stabler bearings, eliminating the weakness in their attachment and improving control conditions. The cross-section and hardness of the front-axle beam was improved to eliminate instances of its sagging during operation, and bearings with an increased load-carrying

capacity were installed in the hubs of the front wheels. The steering gear levers and the ball pins were strengthened in the steering. In the braking system, the airtightness of the pneumatic actuator lines was improved and an anti-congealant and motor brake with a solid stainless steel axle were incorporated. The power-supply unit production facilities at the Yaroslavskiy Motor Plant also underwent modernization.

During the second stage of modernization, it is planned to bring us as close as possible to the world level and to insure an increase in service life to 600,000 kilometers. The three-axle MAZ-64221 and the two-axle MAZ-54321, which the plant is mastering this year, will correspond to this level. This running indicator will permit overhauls, which cost 2-2.5-fold more than the manufacturing of a new vehicle, to be eliminated. The labor intensiveness of the technical equipment will be decreased 1.5-2-fold. The productivity of the new road trains will grow by an average of 50 percent by increasing load-carrying capacities and raising travel speeds. YaMZ-238FM and YaMZ-8421 diesel engines with an increased service life will be installed in these vehicles. A modernized front axle with a new beam having a modified configuration, a cylindrical pintle and optimum parameters for mounting the steering wheel will be used. An increase in the wear resistance of the differential items (spiders and support washers), planet pinions and wheel transmission drive gears will be provided for in the front axle.

During the 13th Five-Year Plan, it is necessary to increase service life to 700,000 kilometers and to reduce fuel consumption by 7-10 percent. The power and torque characteristics will be optimized, the nominal engine revolutions will be reduced, and transmission losses will be curtailed by using a gear-box with a direct drive and single-stage (without wheel gearing) drive axles. The cab will also be modernized.

During all stages of the work, we plan to improve reliability and safety by bringing the mean-time-between-failures from 10,000-15,000 kilometers to 20,000 kilometers in 1988 and to 30,000 kilometers in 1995. In order to do this, we plan to use such modern technological processes as the thermal spraying of 21 items, the laser thermal hardening of 11 items, the volume carbonitriding of 17 items, and the rapid high voltage carbonitriding of 7 items. The periods for TO-1 technical maintenance will increase to 10,000 kilometers by 1990 and those for TO-2—to 30,000 kilometers. During this, the labor-intensiveness of technical maintenance in 1990 will be reduced by 24 percent, and the labor-intensiveness of routine maintenance—by 10 percent (in relation to 1985).

A spherical faring with a slope adjustable for the type of towed semitrailer is being installed on the cab roof in order to reduce wind resistance. In 1984, the new MAZ

road trains successfully underwent rejuvenation tests in the YuTAK (France) research institute in accordance with prescribed directive international requirements.

The two-axle MAZ-54322 truck tractor with a MAZ-9397 semitrailer received a gold medal during the fall international fair in Plovdiv (Bulgaria).

An automated design system (SAPR) and a flexible automated testing system, which permits the operational development of the designs to be accelerated significantly, are assisting in the entire complex of work to increase the safety and dependability of the designs in the Minsk vehicles. It is clear that the Minsk Motor Vehicle Works' new family of trucks and road trains, which have a good reputation in our country and beyond its borders, will confirm it even more.

COPYRIGHT: Izdatelstvo "Transport," "Avtomobilnyye dorogi," 1988.

08802

Trucks for Northern Regions Detailed

18290004c Moscow AVTOMOBILNYYE DOROGI in Russian No 7, Jul 88 pp 11-12

[Article by B.N. Infontov, candidate of technical sciences, Institute for Complex Transport Problems: "Motor Vehicles For the North"]

[Text] The USSR Ministry of the Automotive Industry has decided to increase the production of trucks and buses modified for northern conditions fivefold and to expand the truck production products list. The UralAZ [Ural Motor Vehicle Works] is increasing the production of all-wheel drive diesel transport road trains with a cargo capacity of 14 tons that are adaptable to streamlined production methods. The ZIL-4331 two-axle diesel truck with a cargo capacity of six tons and twelve tons with a trailer, which has been designed for Group B roads, is already coming off the production lines of ZIL [Motor Vehicle Works imeni Likhachev]. The Gorkiy Motor Vehicle Works is working on the design of a modern truck—the GAZ-4509—with a cargo capacity of 4.5 tons and an air-cooled diesel engine. A significant portion of these trucks will be produced in a version modified for northern conditions.

The Minsk and Belorussian Motor Vehicle Works (the BelavtoMAZ Production Association) has achieved great success in designing complete families of trucks. The MAZ-6422 road train with a cargo capacity of 32.5 tons has been designed for intercity shipments on Group A roads.

The MAZ-7310 truck with a cargo capacity of 21 tons is being widely used in cold climate areas on dirt and frozen roads; and the BelAZ-75211 dump truck with a

cargo capacity of 180 tons (for comparison—three railroad cars)—in quarry work. A dump truck with an even larger cargo capacity—200 tons—is being designed.

The production of all-wheel drive dump trucks with the chassis heated by exhaust gases will be mastered in the branch's plants.

New equipment is also being especially designed for the oil workers in the northern Siberian region. These primarily consist of new MAZ truck-road trains with a carrying capacity of 65 and 100 tons. The power of the engines installed in them is 478 kilowatts (650 horsepower). They are designed to transport the heavy structures and large indivisible units of the drilling and gas compressor stations over any road in cold climate areas.

The production of several vehicles at the Kremenchug works is planned. Among them will be a truck tractor capable of transporting three 12-meter large-diameter pipes with an overall weight of 15 tons. In order to increase cross-country capability over dirt roads, the wheels of the vehicle have been equipped with low pressure tires. In addition, it is planned that the trailer travel exactly in the track of its prime mover. Another KrAZ [Kremenchug Motor Vehicle Works] having the same cargo capacity with a platform semi-trailer has been designed to transport various pieces of technical equipment, tractors, cranes, and large housebuilding items.

The production of heavy fueling trucks with a capacity of up to 24,000 liters, isothermal vans and other specialized motor vehicles is also planned.

Motor vehicles modified for northern conditions, which have additional equipment that simplifies the driver's work, will be produced during the 12th Five-Year Plan. This equipment primarily consists of heaters and pre-heaters of an automatic type which permit rapid starting of the engine under severe cold and better heating of the cab. The motor vehicles will have improved thermal insulation in the cab and be equipped with windshields having electrical heaters.

At the same time, the trucks being produced and prepared for production in a northern version during the current five-year plan will still not be fully able to satisfy the national economy's requirements. In order to fulfill the planned freight turnover and solve a number of social problems in the cold climate rayons, it is necessary to expand the products list of motor vehicles designed for northern operations.

Vehicles with a small cargo capacity—0.4 and one ton—are needed to transport small lots of freight and for the population's everyday services. These vehicles are basically required in cities and population points and that is why it is not mandatory to make them all-wheel drive ones. A front-wheel drive configuration is more effective and logical for these vehicles. It is also advisable to

provide a vehicle with a cargo carrying capacity of up to one ton with a drive on both axles based on the UAZ [Ulyanov Motor Vehicle Works] for operations on non-urban and rural roads. A similar all-wheel drive vehicle built for northern conditions with a cargo carrying capacity of two tons has already been designed in the form of a modification to the GAZ-66 motor vehicle which is produced by the Gorkiy Motor Vehicle Works.

In motor transport, increasing labor productivity and reducing transportation costs have very important significance. These are most simply achieved by using trucks and road trains with a very large cargo capacity—limited only by the permissible axle load on a road—everywhere that it is possible, in particular, during all types of heavy shipments. Based on these considerations, it is advisable to produce in a northern version truck tractors based on the ZIL and a family of trucks and road trains based on the KAMAZ [Kama Motor Vehicle Works] for the cold climate rayons. These vehicles will find widespread use for local shipments over the local roads, in agriculture, during container shipments, etc.

Road trains based on the two-axle MAZ truck tractor lie in the future of the cold climate rayons. The establishment and expansion of their production in a northern version are one of the primary tasks in raising the efficiency of using motor transport.

Because of the lack of roads in the north, active road trains of the 8x8, 10x10, and 12x12 type will also find widespread use. Off-road dump trucks of the quarry type are extremely necessary for developing the natural riches of the North. The builders need vehicles of this type with a cargo capacity of up to 280 tons today.

The expansion of the products list and the increase in the production of vehicles especially for rayons with extreme natural and climate conditions will increase the efficiency of motor transport operations and contribute to the very rapid development of Siberia and the Far East.

COPYRIGHT: Izdatelstvo "Transport," "Avtomobilnyye dorogi," 1988.

08802

RAIL SYSTEMS

More on Sverdlovsk Rail Blast

18290021a Moscow SOTSIALISTICHESKAYA
INDUSTRIYA in Russian 14 Oct 88 p 4

[Article by V. Semenov, SOTSIALISTICHESKAYA
INDUSTRIYA correspondent, under the "Detailed
Report" rubric: "Disaster Area"]

[Text] It is now clear that the tragedy which took place in the early morning of 4 October at the Sverdlovsk Marshalling Yard is much more serious than was thought in the first few hours and even days after the accident. "We do not recall having witnessed destruction of this scale on the railroad," said USSR Minister of Railways N. Konarev at a meeting of the bureau of the Sverdlovsk obkom of the party.

Now the figures can be quoted with a high degree of reliability.

"Over 1,000 persons were treated by physicians during the week following the misfortune," recounts RSFSR Minister of Health A. P. Potapov. "Some 118 were hospitalized, three of whom are in extremely serious condition. Three died at the scene of the catastrophe and two passed away in the hospital. One-third of the injured suffered eye injuries from broken glass. Many suffered cuts and skull and brain injuries. In the last few days, cases of neurosis and stammering in children have been reported. A team of psychiatrists and specialists from the Institute imeni N. V. Sklifosovskiy has come to help the doctors. Several aircraft have delivered additional equipment, preparations, vaccines and serum."

Discoveries and reports of damaged buildings are winding down, now. Deputy Chairman of the RSFSR Council of Ministers O. Lobov, who heads the government commission, told reporters at a press conference that many industrial buildings had been damaged, 72 houses will have to be demolished, and more than 600 apartment houses require medium and routine repairs. In addition, dozens of stores, schools, kindergartens and hospitals—over 360 facilities related to the social infrastructure—will have to be restored. School classes were cancelled for the first few days and many children have still not returned to kindergartens and nurseries.

And even though the extent of the damage has not yet been calculated, preliminary reports set it at R250 million.

The Ministry of Railways commission completed its investigation into the causes of the trainwreck. Our newspaper has already reported on the negligence of the station employees, which resulted in a consist with a dangerous cargo unexpectedly rolling down an incline into the path of a passing train. As an experiment showed, the engineer was 11 seconds short of having enough time to hold the train back and avoid a collision.

After that...a railcar overturned by the impact knocked down a catenary system support, thus generating the sparks which started the fire. Two minutes later there was an explosion. This is how specialists reconstructed the accident. There are, however, several versions of how the cargo caught fire. In any event, the specialists were unable to set the roof of the car afire after shorting out the electrical conduit to the roof three times. So the commission can cite only the probable causes for the origin of the fire. But it has already been accurately established that in addition to the violations of shunting regulations the tragedy at the station has another cause: the existing method of transporting hazardous cargoes by rail.

The producer plant makes the rules concerning the conditions in which its output is transported. It determines the sort of packing in which a cargo is to be transported, the arrangement used when placing it in the railcars as well as the type of railcar to be used and its technical condition. And even if, as the members of the departmental commission assured us, all possible precautionary measures are taken, the railcar and its hazardous cargo are subject to totally different conditions outside the enterprise's gates. Some 3,000 volts of tension are suspended over it, sparks fly up from passing consists, shunting impacts are unavoidable etc. In short, all the stringent safety requirements disappear when it comes to the railroad transport sector. But the fact is, foreign transport workers are experienced in transporting such cargoes.

"In the USA, for example, explosives are transported in special containers. In tests, they are run into a concrete wall at 135 km per hour, after which they are subjected to fire for two hours," says First USSR Deputy Minister of Railways G. Fadeyev. "What's more, these containers are tested for strength by dropping them from a height of 9 m onto a hard surface, and are dropped from a height of one m onto a steel bar. After all the tests, the container is subjected to flames again at a temperature of 800 degrees. And we transport explosive materials in wooden railcars thinly clad in metal. After the trainwreck in Arzamas, our ministry collegium held a joint meeting with representatives of the concerned departments. We agreed to more stringent requirements for transporting hazardous materials, and outlined measures for developing special rolling stock. But the technical goal has yet to be issued.

How long can departmental disagreements and buck-passing go on? Even the tragedy in Arzamas has failed to dismantle the unfeeling bureaucratic machine. And how many more explosions must we have before the GOST explosive materials standards are rewritten to require additional shielding?

But primary guilt for the tragedy is, of course, the railroad's. The pursuit of gross indicators to the detriment of the quality of transport operations has become the determinant style of the work done by the MPS. The

accidents had to happen so that Minister N. Konarev would decide to radically renovate the already-exhausted capabilities of the Sverdlovsk Marshalling Yard and bring in new automated equipment.

Thousands of people have been brought in to help remove the aftereffects of the accident, and not one of the city's enterprises has failed to participate in this effort. Fuel, water and gas supplies have already been restored to this area and a water-filtration station and a sewage header have been put into operation. Construction brigades from different cities in the country have come to the aid of the citizens of Sverdlovsk, and 9 glassmaking plants have set to work. Money from organizations and citizens is being sent to Promstroybank Operational Administration Account No 700972. For example, driver Bolonin, of SPOGAT-8 [not further identified] contributed R2,000. Members of the Sverdlovsk Railroad MZhK [International Railway Transport Committee] decided to turn over 36 apartments in an apartment house erected in their name, Uralmash [Ural Heavy Machinery Plant imeni Sergo Ordzhonikidze] is turning over 60 apartments and other enterprises in the city have followed suit.

And those persons who have been made homeless are living in hospitals, where free meals and rooms are being provided. Almost 500 people will be resettled in new apartment houses in October.

Over 1,000 apartments will be needed. Housing construction has already begun jointly with construction of rayon social-cultural and personal facilities, but it is still somewhat premature to speak of major successes. Suppliers are being plagued with disruptions, and construction workers and repair workers are having disagreements. Some directors are afraid to make independent decisions, and would rather wait for the governmental commission to do so. And outside, it is already autumn with the Urals frosts fast approaching.

12659

Shortage of Resources on International Routes
18290009a Moscow GUDOK in Russian 2 Sep 88 p 1

[Article by MOSKOVSKIY ZHELEZNODOROZHNIK correspondent Yu. Kozlovskiy under the rubric "Service Provided by 'Inturtrans'": "Have the Resources on International Routes Been Exhausted?"; first paragraph is introductory]

[Text] As many Soviet citizens have traveled abroad on official business or as tourists in just 5 months this year as in all of last year. Just how is the sharply increased volume of passenger traffic on international routes being provided for?

There is a huge crowd in front of the Moscow Administration of Visas and Registration of Foreigners [UVIR]. People are waiting impatiently in the afternoon. At 1500 hours, the masses of people pour into the entrance and spread out among the offices. Soviet and foreign citizens are standing in lines.

"What is the reason for such a stream of visitors?" I ask Comrade Apattsev, chief of the UVIR.

"A considerable increase in contacts with foreign countries. The number of persons leaving has tripled in recent years."

"Well contacts are good, but judging from everything, the UVIR is being bogged down in paper work. I would be interested in finding out: how is the preparation of train and air tickets being handled?"

And I went to the "Inturtrans" Central Administration, which provides travel documents to foreign tourists for trips in the country. A huge line had formed here in an old Moscow courtyard at the glass doors. A roll call of unknown origin was being counted out:

"1,076..."

"Here!"

"1,077..."

Finally, when the roll call stopped with the number 1,180, the crowd began dispersing. About 100 persons who were to have gone in over the next hour or two remained at the entrance. Some of them who were tired of standing had made themselves "comfortable" on vegetable boxes.

I manage with great difficulty to pass through the dense line of passengers to get into the building. The interior is modern: glass, plastic and metal. And how incongruous the long lines appear in these ultramodern accommodations.

"We serve more than 1,400 passengers a day," S. Lundina, the deputy chief of "Inturtrans," explains. "We receive about 700 orders and issue as many tickets. We are not in a position to do more; after all, the travel documents have to be filled out by hand."

"But you have the 'Ekspress-2' cash registers, after all. Don't they really help?"

"No, unfortunately. The machines only provide information on the seats available on trains and print out the so-called boarding cards. We do everything else in the old way. Let us go and look."

Indeed, the workers seated in the light, spacious rooms were filling out the documents. Mountains of paper towered around them. Thousands of ticket books were waiting for their hour. I was interested in seeing if complaints had been made against the railroad workers.

"No," Susanna Iosifovna replies. "The ministry is doing everything possible, and at times even what is impossible. They always try to meet the need: they organize additional cars and additional trips on the heaviest routes."

But the railroad workers could help here with the ticket registration. Isn't a machine as clever as the "Ekspress-2" really capable of printing tickets? Then the registration time will be shortened and the lines will be reduced. For a start, it is necessary to help in registering the tickets, if only for trips in the Soviet Union. New programs were promised for introduction as far back as spring. But as you see, there are none yet.

However, we will listen to Boris Yefimovich Marchuk, a staff member of the VNIIZhT [All-Union Scientific Research Institute of Railroad Transport] who is studying this problem:

"A program for ticket sales to foreign tourists traveling within the country will be ready by the end of the year. We have had to overcome a considerable number of difficulties here. After all, new rules and rates are in effect now. As far as automating the printing of tickets for travel abroad is concerned, there are even more complications here. The problem of distributing the revenue among the railroads which carry the passengers has not been resolved yet, and the problem of ticket refunds has not been settled. I believe that the 'Ekspress-2' will handle the new functions by 1992."

Ticket offices with the "Ekspress" system are operating in Helsinki, Warsaw, and Sofia, and we are planning to install them in Budapest and Prague. But there are also many problems here, by the way. Who will maintain them? Will these machines be purchased or leased? Who is to be paid for the communications channels?

Questions, questions, questions... After hearing the unflattering views about passenger service in the line, the compliment by "Inturtrans" and a scientist's comment, I went to the department for organizing traffic on domestic and international routes of the Passenger Main Administration of the MPS [Ministry of Railways], where I met with V. Konovalov, deputy chief of the department.

"About 4.5 million passengers were carried in 1987, which is 750,000 more than in 1986," he said. "The passenger flow has increased even more this year. Nearly 1.8 million passengers have been carried in just 5 months, which is 1.5 times more than in the preceding

year. At the same time, passenger traffic has more than doubled to certain countries, such as the FRG, Greece, Denmark, Poland, Sweden and Yugoslavia, let us say."

"What is being done to cope with such a rapid increase in the passenger flow?"

"New trains were introduced on the Moscow-Warsaw-Berlin route for the summer. The train from Leningrad to Warsaw which formerly left every other day now leaves daily. The Leningrad-Berlin, Riga-Warsaw, Moscow-Aachen, Moscow-Prague, and other unit trains have been reinforced."

"Vladimir Yemelyanovich, the situation with regard to trains is clear, but what can be said about additional cars?"

"About 500 cars have been added in international consists in connection with the sharp increase in the passenger flow. In May and June, for example, 45 cars were sent to Hungary, 35 to Czechoslovakia, 73 to Poland, 79 to the GDR, 50 to Bulgaria, and 31 to Romania. Moreover, additional runs have been assigned on a practical basis: 18 to Berlin, 11 to Prague, 5 to Budapest, 3 to Sofia, and 12 to Ulan-Bator."

But it cannot be forgotten that railroad transport is experiencing a critical shortage of passenger cars, since planning organs and industry are in no way meeting the requirements for this type of rolling stock. The technical resources of the repositioning yards [perestanovochnyye punkty] at border stations have been completely exhausted. The yards are designed for only 12 cars. Repositioning even one additional car "eats up" 45 minutes. There are not enough trucks for track with a gage of 1.435 millimeters [sic]. We are doing everything that it is possible to do.

As we see, it has become no easier to go to Berlin now than to Sochi. How can this situation be corrected? It is absurd to give recommendations to the Railcars Main Administration, the TsTVP [Rolling Stock Repair and Spare Parts Production Main Administration] and to scientists of the VNIIZhT, although passengers are waiting for specific actions from them.

8936

BAM Logistical Problems Noted

18290009b Moscow GUDOK in Russian 2 Sep 88 p 2

[Article by V. Sizov, chief of the transportation department of the BAMtransstroy Planning, Industrial and Construction Association: "We Are Comrades-in-Arms, BAM Construction Workers Say of Their Relationships with Railroad Workers"]

[Text] If one listens to the BAM [Baykal-Amur Mainline] railroad workers, we, the mainline's builders, are to blame for everything: we are laying out the sidings poorly

and we are slow in unloading the cars. Indeed, the flow of freight is increasing and we cannot cope with it at times. Subunits of the BAMtransstroy Planning, Industrial and Construction Association (PPSO) process more than 3,000 cars every month. This number will be increased even more in the coming 2 years—in connection with preparations to turn the BAM over for continuous operation. Realizing this, we mapped out a number of measures. So more than a half million rubles were spent last year just to build sidings and bases for loading and unloading rolling stock and to equip them with machines and machinery. This made it possible to shorten the average car layover by 32 minutes compared with the previous year, when unfortunately not one BAM construction subunit kept within the norm and the sum of fines added for rolling stock layover was even increased by 30,000 rubles over the amount in 1986.

The freight handling situation is not improving well even now. The situation is especially unfavorable in the "Tyndatransstroy," "Nizhneangarsktransstroy" and "Bamtransvzryvprom" Trusts, where layovers are 2.5 times above the planned figure. And there are reasons for this. First of all, these subunits are now receiving loads the most intensively. Secondly, many of them have been deprived of unloading sidings because parts of the line are to be turned over for continuous operation; they were taken away by the railroad workers.

Some of our managers are not blameless, either. After all, they were able to significantly speed up freight handling in the UPTK's [presumably: Administrations of Production Technical Equipment in Complete Units] of the "Bamstroykomplekt," "Bamstroymekhanizatsiya" and "Bamtranstekhmontazh" Trusts. Along with mechanizing operations in these collectives, they have improved loaders' wages, making them dependent on timely processing of the cars delivered. But they have unresolved problems as well. For example, during the winter, which lasts a long time here, we need special heated enclosures to warm up the freight that has frozen together along the line of travel and the machinery to loosen them. But up to 120 gondolas with frozen coal per day come to us from the Neryungri open-pit mine during the cold season. The sand ballast arrives in the same condition. Dozens of cars also accumulate at unloading points for this reason. What we don't do to relieve this congestion! They have adapted production shops for the warmup at construction industry enterprises. At the "TsentrObamstroy" and Zapbamstroymekhanizatsiya Trusts they have built higher tracks to speed up unloading of the coal. But the problem can really be resolved only by building heated enclosures of sufficient capacity at the stations in Tynda, Chara, Severobaykalsk and Lena, where the main forces of construction workers are stationed.

There are other possibilities for shortening rolling stock layovers. Where the number of cars arriving for unloading is more than 50 units, provision is made for stations and enterprises to arrange and clean them in a single process. At the initiative of the Svobodnyy Division of

the Transbaykal Railroad and our former main administration (now an association), this system has been introduced at the Shimanovsk Combine of the construction industry. This year it is planned to utilize it at the same combine in Tayshet. The advantage is obvious: while the Shimanovsk workers did not manage to avoid penalties before, they have kept within the norm for rolling stock layovers for the first time.

It is strange but true: what we have managed to resolve jointly with the Transbaykal Railroad is forced through with a squeak "at home" in Tynda, where everyone on whom this depends—the administration of the Baykal-Amur line and its Tynda Division—is located. The division's managers did not even respond to our suggestions about delivering the cars to unloading platforms and cleaning them after unloading in accordance with a firm schedule. It turns out that they deliver the rolling stock when they want to, and the teams of loaders at the bases for complete units of equipment are either rushing through the work or standing idle for this reason.

The line's managers have become very inattentive to our needs, to say the least. We have been turned into ordinary clients with whom they may not particularly stand on ceremony. Previously, all doors were open to construction workers, but now we sometimes have to run after railroad workers for a week to shake loose a car that is needed.

Here is a recent case. A compressor failed at the Mogocha station, where we are installing electricity. We had to get a new one there urgently. Employees of the mechanization administration of "Bamstroyput" went to the deputy chief of the line's Tynda Division, V. Korenchenko. But he turned them out the door. They tried to come to an agreement for a week. Another week went by before the compressor reached Mogocha. The construction workers had remained idle for 2 weeks! But after all, it could have been limited to 2 or 3 days if a higher contracted payment for delivery of priority freight had been established, as our time of restructuring dictates. This would have been more profitable for us and the railroad workers as well.

A month earlier the chief of the station, V. Suprun, "turned out" two representatives of the voluntary-assistance train "Uzbamstroy" with the assistance of an employee of the armed guard; they had come to ask that vehicles be ferried to Kuanda on a flatcar, since it was impossible to use the highway: the bridges had been swept away by a flash flood.

Finding a common language with the railroad workers has become so difficult that some of our employees cannot stand it. So a deputy chief of the "TsentrObamstroy" UPTK was dismissed recently; before leaving he said that working with the line was affecting his nerves.

We realize that the Baykal-Amur line's workers have quite a few problems. But they should also understand ours. Especially as we are working on them. We have hundreds of suppliers situated in different parts of the country. The periods of time to deliver their items are drawn out for various reasons. For example, the Chelyabinsk Pipe Rolling Plant was to send the "Bamstroykomplekt" Trust 60 tons of pipe in the first quarter and the same in the second quarter. We have not received them to date. Should we order cars for them, as the railroad workers demand? But after all, we must pay for ones that are unused.

The shippers need to be disciplined, of course. In order to put the shipping process in order, our trusts and administrations have introduced the position of chief dispatcher (most of whom are specialists in rail transport). In order to improve their skills under the new conditions of economic operation, we have come to an agreement with the transport service of the Baykal-Amur line to conduct a seminar for them in Tynda in the near future.

Expenses cannot be avoided, however. The BAM is not an ordinary construction project, and our subunits are still carrying out work on electrification of the Transsib [Trans-Siberian Mainline]. One would think that this would incline railroad workers toward closer contact with construction workers and mutual assistance. But last December we submitted a request to the Ministry of Railways: as an exception, to authorize the Baykal-Amur line to ship construction materials, equipment, machines, machinery and food on presentation during the period of its preparation for continuous operation and the electrification of the Transsib. But this is how the deputy chief of the Transport Planning Administration of the ministry, Comrade Medvedev, responded to our request after a month and a half: "The Law on the State Enterprise calls for strict adherence to planning discipline and complete fulfillment of plans and contract commitments. Such a requirement increases the role of monthly plans, which in railroad transport are the basis for the technological process and for fully meeting the national economy's requirements for transport. In connection with the foregoing, giving instructions to ship freight on presentation does not seem possible."

It seems to me that such an attitude does not help affairs at all. Our common affairs, I will note. After all, we are not simply clients, we are comrades-in-arms.

8936

Kharkov, Kiev, Minsk Metro Status Reviewed
18290002 Moscow GUDOK in Russian 9 Aug 88 p 2

[Article by V. Chibisov, GUDOK special correspondent: "Transport Which Is Lucky"; first paragraph is GUDOK introduction]

[Text] The country's subways will shift to cost accounting next year. How are the preparations for it progressing? What problems are the underground mainline workers encountering? A recent trip by a group of journalists

from the central press and radio on the Kharkov, Kiev and Minsk subways was devoted to an analysis of these questions.

A Course Toward Electronics

The trains fly through the tunnel with a roar, but their noise is hardly heard behind the thick walls. A soft female voice tells about ways to grow mushrooms in the underground excavations. In our hands we have printed recipes for preparing mushrooms....

The subways differ externally from each other in the architectural designs of the stations. In addition, each has its own distinctive features. For example, a Muscovite would be unaccustomed to the empty escalator duty attendant booths, the absence of platform duty attendants at the underground stations in Kharkov and the closed windows of the change booths at the Minsk subway entrances—paper money can only be changed at a booth near the entry turnstiles. When one travels in the cab of an electric train on the Kiev subway, you do not encounter the usual traffic signals in the tunnels. The speed of the train is regulated automatically. The automatic system insures a two-stage monitoring of operating reliability and traffic safety.

... A monitor tenaciously keeps an eye on the escalators moving up and down and the chains of people on them.

"But what if trouble suddenly occurs An individual is stuck somewhere?"

L. Glebova, the chief of Dzerzhinskaya Station in Kharkov, explains: "The automatic system goes into operation and the stairway itself is stopped. Then, here at the panel, one can stop the escalator with this toggle switch."

The comfortable room of the station duty attendant has a panel with a multitude of pushbuttons and switches surrounded by several monitors. Each of them performs a certain monitoring function: One follows the condition of the station and two others provide a view of the boarding and alighting of passengers and the arrival and departure of trains in both directions.... In the event that an obstacle to movement arises, a train is stopped automatically.

The full name of the equipment is the system for controlling the operation of a station (SURST) using industrial television. Here, a shift has been reduced by the two duty attendants near the escalators with the introduction of the system. Considering the fact that all eight stations on the Saltovskaya line are being controlled with the help of telemetry, the effect from its introduction is not a small one.

Today's subway makes bold use of electronics, computer equipment and telemetry in its operations. Trains, which are equipped with an integrated automated system for

controlling train movement and with automatic speed regulators, travel on the most heavily used line of the Kiev subway—the Svyatoshino-Brovarskaia one. Their introduction has permitted safety interlocks to be eliminated and traffic density to be increased from 40 pairs of trains to 42—and, in the future, to 48 pairs during a peak hour. Automation and telemetry have also come to the aid of power and electromechanical equipment. One dispatcher controls the operation of ventilation and plumbing facilities on all lines.

... Minsk. The subway computer center. The computer tape records the passage time of a train, its speed and energy expenditure. This is dispatcher monitoring of the movement of consists.

A group of specialists under the direction of Yu. Chernikov is installing an automated passenger control system here.

Passengers are now counted based on the number of five-kopeck coins. However, one does not know how many travel using tickets and how many use passes. The computer provides an opportunity to determine the number of passengers at any station at any time and, depending on this, to adjust the operation of the escalators and the frequency of train trips and to determine where and what crowd is at the automatic change makers and turnstiles. In the future, they plan to install automatic reading of the consist train numbers. It will then be possible to plan their runs, repairs, technical maintenance, and assignment to a line better.

The journalists saw much that was interesting in the subways of the three cities. They familiarized themselves not only with the advanced equipment and methods for organizing work but also with the prospects for expanding the underground mainlines and solving social questions. However, I think that the discussion concerned cost accounting most of all. This is understandable. The cost of trips outruns the subways' income from year to year, that is, underground transport is not profitable. Under these conditions, it is not easy to shift to the new cost accounting conditions. The question of the subway's profitability is arising in all earnestness.

The main item in a subway's income is the transportation of passengers. That is why, in any event, the discussion revolves all of the time around the cost of a trip, that is

Around the Five-Kopeck Coin

The subway is the luckiest type of urban transport. Traffic jams and their outcomes, snow-drifts in the winter and downpours in the summer are unknown to it. It is always clean and warm... rapid delivery and ... all of this for one and the same price as, for example, the

streetcar—five kopecks. There have recently been quite a few discussions about this in the press: Are they justified or not in increasing the price for a trip or should they look for other reserves....

For the subway people, the problem of the five-kopeck coin is a simple one: There is not a single subway today whose transport costs are covered by the price of a trip. Nevertheless, the subway workers are not ardent supporters of increasing fares because they think that the possibilities for correcting the financial situation without picking the pockets of the passengers have not yet been exhausted

Here are several figures: Income from transporting passengers grew by 62.5 percent in 1987 when compared to 1975, but maintenance costs grew by 117 percent. The unprofitability of subways increases rather sharply as subway lines are expanded. Whereas losses reached 4.4 million rubles in 1981, they were 36.3 million in 1985. This year, a loss of 75 million rubles is already expected....

P. Mitasov, the chief of the Minsk subway, thinks: "It is impossible to organize cost accounting with the existing tariff. There are two ways to improve it: increase the price of a trip or take fees from the city's enterprises and gorispolkoms for services." His colleagues in Kharkov and Kiev agree with his opinion.

The subway indeed is part of the Ministry of Railways system. However, if we take a railcar from the railroads for our needs, we pay for it. But local agencies have a different attitude toward subways. From their point of view, the subway evidently differs little from a trolleybus and the price for a trip is now the same on both. Otherwise, how can one understand the Ukrainian SSR Council of Ministers who introduced a new single fare costing six rubles instead of 9.35 rubles, as it was previously, when raising rates for a trip on urban surface transport? The price of a trip in a streetcar, trolleybus and bus was raised, but "travel" became cheaper. Naturally, many availed themselves of this.

One, however, should consider the contribution of each type of transport to urban transportation and determine the portion of income for each one in accordance with this. True, it has been determined but so that a subway receives 2.50 rubles for each ticket sold. According to the most modest estimates of the subway workers, they are losing 42 kopecks per ticket.

L. Proreshneva, chief of the labor and wage department of the Kiev subway, says: "Annually, we fail to receive more than 600,000 rubles for this reason alone. And something else: the city orders the construction of new lines including in future areas that still do not have many inhabitants. We will soon begin constructing the Syretsko-Pecherskaya line and there practically will not

be any large volume of passenger traffic at the first three stations. Who will compensate us for these expenditures? It seems that the city should pay part of them."

More than 20 types of documents for free travel exist on the subways. On the whole, this represents eight million unreimbursed rubles a year, of which 750,000 falls to Kiev. Is it not time to re-examine the list of persons having free travel? Why, for example, should the ispolkoms of local soviets not pay for the travel of their deputies? They do not enjoy any privileges in taxis. And internal affairs agency workers in transport?! Why should the subway be obliged not only to transport them free but also to pay for their uniforms out of its own pocket, squeeze out their pay, etc. Then, there is the detectives' private office which the department rents for the service. The costs beat the tenant painfully: 939,000 rubles are deducted a year for the upkeep of the police in Kiev; 400,000—in Minsk; and Kharkov expends no less. Let us remember that all of this comes from five kopecks. It is not a five-kopeck coin but a milk cow. Certainly, it would be logical to take care of the internal affairs worker in the local budget as was done before the transfer of the subway to the Ministry of Railways system.

In general, it would be useful for enterprises to pay for the delivery of their workers to work sites under the conditions of self-financing and self-support [samookupayemost].

Subways are called unprofitable. But is this so? Who has tried to compute their effectiveness in an integrated manner?

L. Isayev, chief of the Kharkov subway, agrees: "Nothing has been done here. We have quite a few scientific establishments and transport institutes and not a single good computing methodology. We are using an antiquated method—from the number of five-kopeck coins plus or minus expenditures for wages, amortization, etc."

The subway workers are correct here. For some reason, they do not consider anywhere what the savings in time in delivering people to their work sites and the lowering of their "transport fatigue" come to. An approximate computation shows that these factors are capable of raising labor productivity by 10-12 percent. The reducing of road transport accidents, the preserving of the environment, the reducing of noise, and the better use of the city's useful areas cannot be left out of the economists' calculations. Such a calculation does not exist. Based on five-kopeck coins alone, it turns out that the transportation of ten passengers last year came to 52.17 kopecks in Moscow; 54.8—in Kiev; 59.21—in Kharkov; and 68.00—in Minsk. The trend toward an increase is being maintained. Considering the fact that the cost of construction materials has increased twofold and that

the costs for water, electrical energy, machinery and equipment have increased, you will indeed not manage here with one five-kopeck coin.

I would like to direct your attention to another aspect of the problem. As a rule, the city emerges as the customer during the construction of a subway. Its desire to see its subway different from others is understandable: in the finishing of the stations, in the use of rare materials, etc. All of this is commendable if expenditures are not considered. It makes no difference to the subway builders what this or that station is built of, even if it is gold plates. There would be deliveries. However, it is necessary to pay the operators a single amount and again—from that same five-kopeck coin.

Incidentally, our native ministry is not hurrying to remove part of the concerns and problems from the subway people. Take logistic support. The three cities complain with one voice about the wretchedly poor supply of spare parts—especially for the electrical equipment of the trains. In Minsk, up to 70 percent of cases of removal of consists from a line are caused by the breakdown of equipment. There is nothing to replace it with. The Material and Technical Supply Main Administration has "separated itself" from the subways, having granted them the right to conclude contracts themselves for direct deliveries from the manufacturing plants. The Minsk people have distributed 300 contracts and ... not a single enterprise has come to meet them. This is understandable. A subway is not a road—it is not able to continuously maintain prolonged economic ties. Dozens of individual items and hundreds of others—this is the entire collection that they need. And the plants have a state order. Submit requisitions for thousands of items to them. In this situation, GUMTO [Material and Technical Supply Main Administration] should not "separate itself" but rather immediately become a contracting party with the plants and deliver spare parts for all of the country's subways. It should not shove its work off "to the local agencies."

Of all of the types of urban transport, the subway is the luckiest. However, is this good luck so good? Perhaps we have become accustomed to think in an old-fashioned manner?

... In an abandoned adit in Kharkov and in Pushkinskaya Station, they are growing in boxes precisely placed on shelves ... mushrooms. O. Pilipenko, the manager of the mushroom complex, is providing an explanation to the next group of subway guests: The complex has existed since April 1988. They themselves set up four chambers... waste-free production... we are opening kiosks for the sale of mushrooms in the stations... three rubles a kilogram... memorize the printed recipes for preparing mushrooms. We will add that 80,000 rubles were spent on the entire complex and the sale of products will provide 150,000 rubles of profit. It will pay for itself in one year. This is spending funds wisely!

08802

MARITIME AND RIVER FLEETS

'Volzhanka' Maritime Transceiver Reviewed

18290005 Moscow RECHNOY TRANSPORT in Russian No 7, Jul 88 pp 40-41

[Article by Ye. Trofimov, deputy chief of the USiRN MRF, and N. Mokrushnikov, leading engineer, TsNIEVT [Central Scientific Research Institute of Economics and Operation of Water Transportation], under the "Navigation Safety" rubric: "The 'Volzhanka' Transceiver"]

[Text] The RSD-70ChM portable UHF transceiver, made in the People's Republic of Bulgaria, is being used along with the "Kama-S" and "Kama-R" transceivers for communications among vessels. However, experience in its use has shown that the transmitter has a short range (3 to 4 kilometers), because of its low output (0.3 watts); an insufficient number of operating channels (3); and a receive-transmit switch that is unreliable. In addition, it has not been possible to organize continuous 24-hour operation because the unit lacks a nonportable power supply from a 220-volt alternating current or 24-volt direct current system. The battery provided has not lasted for more than 10 hours.

Taking these shortcomings into account, we have developed the RN-18B "Volzhanka" transceiver, which provides for simplex radiotelephone communication on fixed frequencies in the 300.0 to 300.2 and 336.0 to 336.2 MHz bands; the transceivers can communicate with each other and with vessels and shore stations of the "Kama" type, as well as with the RSD-70ChM transceivers. It is convenient for organizing calls on a diesel vessel and the barge train which it is pushing, during mooring, in determining separation in passing, and in cargo operations (only in the 336.0-336.2 MHz band).

Transceiver Specifications

Frequency range	300.0-300.2 and 336.0-336.2 MHz
Separation between adjacent channels	25 KHz
Modulation	phase
Maximum frequency deviation	5 KHz
Audio frequency band	300-3,000 Hz
Supply voltage	12.6 volts
Overall dimensions	195 x 80 x 45 millimeters
Mass	1.22 kilograms

Transmitter

Carrier output	1 watt
Coefficient of harmonic distortion	7 percent

Output of extraneous emissions	2.5 microwatts
Current	350 milliamperes

Receiver

Sensitivity [chuvstvitel-nost SINAD] 12 decibels, 1/2 electro-motive force	0.7 microvolts
Coefficient of harmonic distortion	7 percent
Adjacent-channel selectivity	70 dB
Intermodulation selectivity	65 dB
Output	250 megawatts
Current used in the "listening watch" mode	100 mA
Current used in the "receive" mode	5 mA

The PM-703 Keyer

Voice-frequency ringing	1,989 Hz
Overall dimensions	125 x 60 x 33 mm
Mass	0.17 kg

The "Volzhanka" was developed on the basis of modern components, utilizing semiconductors and microcircuits. In its specifications and performance it corresponds to GOST [All-Union State Standard] 12252-86 (ST SEV [CEMA Standard] 4280-83) requirements; it is on a level with world models with respect to certain requirements. The "Volzhanka" completely takes the place of the RSD-70ChM transceiver, and is even superior to it in many respects. The "Volzhanka" is equipped with shoulder and belt straps for convenient operation when moving about.

The unit consists of a transceiver, a battery, a keyer, an AN-701 antenna, and shoulder and belt straps.

The transceiver is housed in an aluminum case which protects the components and provides an effective shield against external interference. Coaxial connectors for the antenna and the keyer, the channel selector, the "Sh" potentiometer for turning the noise suppressor on and off, and the "U" potentiometer to control the volume are on the upper panel.

The 10 KVM 0.5-12 storage battery, which has a mass of 0.29 kilograms, provides for normal operation of the transceiver for an 8-hour period with a correlation of 8:1:1 in the "listening watch," "receive," and "transmit" modes. The battery goes through no less than 200 "discharge-charge" cycles with a normal charging current of 50 milliamperes and a charging time of 14 to 16 hours. The battery's capacity, voltage, and in-service

time depend to a considerable extent on the ambient temperature. For this reason, it is desirable to charge the storage battery under normal environmental conditions with respect to temperature (plus or minus 25 degrees C.) and relative humidity (60-15 percent). It may be charged with the UZ-81, UZ-87, UZ-87-24, UZ-84 and UZ-84-24 units, which first discharge the battery to 10 volts (the maximum for 2 hours). A green indicator light is turned on during this process, and when the battery charge is completed it goes into the "charge" mode automatically and a red light is turned on.

The UZ-81 and UZ-87 **chargers** are designed to charge six storage batteries at one time, but the UZ-84 charger is designed to charge one. The UZ-81 is equipped with a timing mechanism. It provides a complete "discharge-charge" cycle for all the batteries simultaneously. During operation, the timer lever is rotated, and the time remaining before the end of the cycle may be determined by its position. The time to charge each battery individually also depends on the extent to which it has been discharged. For this reason, the green lights do not go out at the same time, but in accordance with the extent to which the corresponding batteries have been discharged. The discharged batteries are not put into the "charge" mode until the charger's automatic switch actuates the "charge" setting for all the batteries at once.

Both chargers make it possible to remove or install cells in the batteries for charging at any time, since each one goes through the cycle individually, regardless of the status of the other ones. If the power supply is accidentally cut off, the charger memorizes the status of each one of the batteries and their "charge" cycle is continued when the system is restored.

The **BP-83 and BP-83-24 units** are designed to supply power to the transceiver in a stationary position from an alternating current (220 volts, 50 Hz) or direct current source (24 volts). They have a cell for maintaining the charge of the battery which supplies power to the transceiver when the power supply is disconnected from the system.

The storage battery is installed in a plastic case which is attached securely to the transceiver case. In order to remove the battery, a release must be depressed. The keyer is mounted in a plastic case; a red button on its upper panel switches on the "transmit" mode, and a button on the front is for voice-frequency ringing. The transceiver case contains a chassis with two separate boards for the receiver and the transmitter which may be swiveled on an axis. This construction makes free access possible for installation and convenience during repair.

The transceiver is used as a **portable** unit if the AN-701 collapsible whip antenna, the PM-703 keyer, the 10 KVM 0.5-12 storage battery, and the shoulder and belt straps are attached. The keyer is installed in a clamp on the shoulder strap, and the keyer cable is fastened to the belt by a leather crosspiece with a button. For **fixed** use,

the transceiver should consist of a transmitter and receiver with a keyer, a BP-83 or BP-83-24 power supply, an ASKI MKh-330 fixed antenna, and a 10 KVM 0.5-12 storage battery. The antenna is mounted on a mast or a vertical surface and should be elevated above nearby objects.

The power supply is installed in a place convenient for the operator, and the transceiver is inserted in the appropriate compartment as far as it will go. The storage battery is put into another compartment of the power supply and the keyer is secured to it with a clamp.

In collaboration with its developers, reception tests were conducted with the RN-18B transceiver on the Volga near the port of Volgograd in July 1987. One transceiver was set up with a λ [followed by Greek letter lambda of uncertain meaning] fixed antenna on the shore, and the other one alternately on different vessels. The transceiver on the vessel was connected either to a quarter-wave antenna or the ASKI MKh-330 fixed type.

The tests showed that the RN-18B may be used on vessels of the local and cargo fleet as well as on barges and push boats and in ship repair enterprises and port mechanization facilities.

The range of stable radio communication using the new transceiver (on shore) with approaching motor ships equipped with the "Kama-R" or "Kama-S" transceivers was 12 to 15 kilometers, but the range was 5 to 7 kilometers when communication was with vessels using the RSD-70ChM transceiver. When the ASKI MKh-330 stationary system was installed on a vessel, stable communication was established with the "Kama-P" station on shore, using the fifth channel, at a distance of up to 20 kilometers. The emissions of "Kama-S," "Kama-R" and the RSD-70ChM transceivers on nearby and passing vessels, as well as port machinery, do not affect its operation. With the aid of an RN-18B transceiver installed on a vessel, stable communication has been maintained with passing vessels equipped with the RN-18B, "Kama-R," "Kama-S" and RSD-70ChM transceivers at a distance of no less than 5 kilometers.

A brief comparison of the specifications of the RN-18B and the RSD-70ChM are cited below.

	RN-18B	RSD-70ChM
Transmitter output, in watts	1.2	0.3
Receiver sensitivity, in microvolts	0.36	0.7
Number of operating channels	5	3
Range of communication actually established between transceivers of the same type located on shore and on a vessel, in kilometers	10-12	4-5
Communication range with the "Kama-P" shore transceiver, in kilometers	20	3

Separation between adjacent frequency channels, in kilohertz	25	25
Power supplies, in ampere-hours	0.5	0.22
Batteries (capacity)	220 volts, 50 Hz	none
On-board system	24 volts	none
Operating time with storage battery, in hours	10	10
Number of storage batteries for one transceiver	4	2
Mass of transceiver, with power supply and equipment, in kilograms	1.19	0.8

Warranty period, in months 24 12

It is obvious from comparison of the specifications that the new transceiver has a number of advantages over the current one. Continuous 24-hour operation is ensured by the availability of line-operated power supply units for the transceiver.

An interdepartmental commission has recommended that the "Volzhanka" be put into series production.

COPYRIGHT: "Rechnoy transport," 1988.

8936

10

This is a U.S. Government publication. Its contents in no way represent the policies, views, or attitudes of the U.S. Government. Users of this publication may cite FBIS or JPRS provided they do so in a manner clearly identifying them as the secondary source.

Foreign Broadcast Information Service (FBIS) and Joint Publications Research Service (JPRS) publications contain political, economic, military, and sociological news, commentary, and other information, as well as scientific and technical data and reports. All information has been obtained from foreign radio and television broadcasts, news agency transmissions, newspapers, books, and periodicals. Items generally are processed from the first or best available source; it should not be inferred that they have been disseminated only in the medium, in the language, or to the area indicated. Items from foreign language sources are translated; those from English-language sources are transcribed, with personal and place names rendered in accordance with FBIS transliteration style.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by FBIS/JPRS. Processing indicators such as [Text] or [Excerpts] in the first line of each item indicate how the information was processed from the original. Unfamiliar names rendered phonetically are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear from the original source but have been supplied as appropriate to the context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by the source. Passages in boldface or italics are as published.

SUBSCRIPTION/PROCUREMENT INFORMATION

The FBIS DAILY REPORT contains current news and information and is published Monday through Friday in eight volumes: China, East Europe, Soviet Union, East Asia, Near East & South Asia, Sub-Saharan Africa, Latin America, and West Europe. Supplements to the DAILY REPORTs may also be available periodically and will be distributed to regular DAILY REPORT subscribers. JPRS publications, which include approximately 50 regional, worldwide, and topical reports, generally contain less time-sensitive information and are published periodically.

Current DAILY REPORTs and JPRS publications are listed in *Government Reports Announcements* issued semimonthly by the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161 and the *Monthly Catalog of U.S. Government Publications* issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The public may subscribe to either hardcover or microfiche versions of the DAILY REPORTs and JPRS publications through NTIS at the above address or by calling (703) 487-4630. Subscription rates will be

provided by NTIS upon request. Subscriptions are available outside the United States from NTIS or appointed foreign dealers. New subscribers should expect a 30-day delay in receipt of the first issue.

U.S. Government offices may obtain subscriptions to the DAILY REPORTs or JPRS publications (hardcover or microfiche) at no charge through their sponsoring organizations. For additional information or assistance, call FBIS, (202) 338-6735, or write to P.O. Box 2604, Washington, D.C. 20013. Department of Defense consumers are required to submit requests through appropriate command validation channels to DIA, RTS-2C, Washington, D.C. 20301. (Telephone: (202) 373-3771, Autovon: 243-3771.)

Back issues or single copies of the DAILY REPORTs and JPRS publications are not available. Both the DAILY REPORTs and the JPRS publications are on file for public reference at the Library of Congress and at many Federal Depository Libraries. Reference copies may also be seen at many public and university libraries throughout the United States.